



# THE CONTRIBUTIONS OF MARINE AND COASTAL AREA-BASED MANAGEMENT APPROACHES TO SUSTAINABLE DEVELOPMENT GOALS AND TARGETS

## TECHNICAL REPORT

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## Abbreviations

ABMT	Area-Based Management Tool/Approach
ABNJ	Areas Beyond National Jurisdiction
APEI	Area of Particular Environmental Interest
BOBLME	Bay of Bengal Large Marine Ecosystem
CBD	Convention on Biological Diversity
CTI-CFF	Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security
CZMAI	Coastal Zone Management Authority and Institute
EBM	Ecosystem-Based Management
EC	European Commission
EU	European Union
FAO	Food and Agricultural Organization of the United Nations
FKNMS	Florida Keys National Marine Sanctuary
ICZM	Integrated Coastal Zone Management
IRBM	Integrated River Basin Management
IMO	International Maritime Organization
ISA	International Seabed Authority
IOC-UNESCO	Intergovernmental Oceanographic Commission of United Nations Educational, Scientific and Cultural Organization
IUU	Illegal, unreported and unregulated fishing
LMMA	Locally Managed Marine Area
MAP	Mediterranean Action Plan
MARPOL	International Convention for the Prevention of Pollution from Ships
MoU	Memorandum of Understanding
MPA	Marine Protected Area
MSFD	Marine Strategy Framework Directive (of the European Union)
MSP	Marine Spatial Planning
NAP	National Adaptation Plan
NBSAP	National Biodiversity Strategies and Action Plan
NDC	Nationally Determined Contributions for climate change

NEAFC	North-East Atlantic Fisheries Commission
PAP/RAC	Priority Actions Programme/Regional Activity Centre
PCZM	Patagonian Coastal Zone Management
PERSGA	Regional Organisation for the Conservation of the Environment of the Red Sea and Gulf of Aden
PNCIMA	Pacific North Coast Integrated Management Area
PSSA	Particularly Sensitive Sea Area
SAP	Strategic Action Programme
SDG	Sustainable Development Goal
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Seas
UN Environment	United Nations Environment Programme
UN Environment/MAP	UN Environment Mediterranean Action Plan
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
VME	Vulnerable Marine Ecosystem

# 1 Introduction

**This report is about how area-based management approaches can support the delivery of Sustainable Development Goals (SDGs). There are a variety of approaches used for planning activities in the marine environment. A selection of different approaches have been analysed via case studies. The report aims to identify possible solutions and guidance on how area-based management approaches can be used to support SDG delivery.**

## **Area-based management approaches**

An area-based (or spatial) management approach enables the application of management measures to a specific geospatial area to achieve a desired policy outcome. At present, a wide variety of area-based management approaches are in use, each with their own purpose, mandate and authority. Some approaches focus on the management of individual activities in a specific area, such as fisheries closure areas, pollution management zones, and seabed mining exclusion areas. Other approaches, such as marine spatial planning and integrated coastal zone management, seek to coordinate and balance the needs of several types of activity within the same area. In this document we are using the term 'approaches' rather than 'tools', to encompass the fact that approaches are considered to be cross-sectoral and wider scale. The term 'tool' is often used for specific sector management to regulate human activity. Therefore in some instances, these words would be interchangeable.

Regulation of activities may be required to support blue growth and sustainable development, the conservation of critical habitats or marine features, such as coral reefs or seamounts, respectively, and to align with provisions or requirements set out in national or regional policies and legislation. As such, area-based management approaches may originate from a variety of sources, including international conventions, regional agreements, and national or sub-national processes.

## **Area-based management approaches in a global context**

Area-based management approaches facilitate the implementation of a policy to address various underlying issues or challenges. As such, these types of approach are being increasingly recognised as mechanisms to support the conservation and sustainable use of marine and coastal resources. The use of specific area-based management approaches in marine and coastal zones is guided by a number of global and regional agreements, and the commitment to use area-based management approaches has been reiterated in many international processes. For example, the 2030 Agenda for Sustainable Development - a "*plan of action for people, planet and prosperity*" - stimulates national and regional action towards Sustainable Development via 17 Sustainable Development Goals (SDGs) and 169 associated Targets.

In the words of the Agenda, these Goals and Targets "*are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental*"

(United Nations, 2015). Area-based management approaches can address each of these three dimensions. These approaches can contribute towards the delivery of SDG Targets through integrated approaches which aim to provide considerate and balanced management of marine and coastal activities.

Further supporting the use of area-based management approaches, the UN Ocean Conference Call for Action (June 2017) calls upon on “*all stakeholders to conserve and sustainably use the oceans, seas, and marine resources for sustainable development... on an urgent basis*”, including supporting “*the use of effective and appropriate area-based management tools, including marine protected areas and other integrated, cross-sectoral approaches, including marine spatial planning and integrated coastal zone management*” (United Nations General Assembly, 2017).

Echoing this, the European Commission and IOC-UNESCO Maritime Spatial Planning Joint Roadmap published in March 2017, seeks to “*accelerate Maritime/Marine Spatial Planning processes worldwide*” (European Commission and UNESCO, 2017); and the UN Environment Assembly resolution 2/10 ‘Oceans and Seas’ (May 2016) calls on UN Environment to enable “*inter-sectoral cooperation in integrated coastal zone management and marine spatial planning*” and, when requested, to provide “*technical advice on the designation, establishment and active management of marine protected areas and on the application of other spatial management measures*” (United Nations Environment Assembly of the United Nations Environment Programme, 2016).

Of relevance to the marine environment beyond national jurisdiction, area-based management approaches are gaining attention through the development of a new instrument. The United Nations General Assembly is convening an Intergovernmental Conference<sup>1</sup>, to elaborate the text of a new international legally binding instrument for the conservation and sustainable use of biodiversity beyond national jurisdiction. This agreement is being developed under the United Nations Convention on the Law of the Sea. The negotiations will address the four elements agreed in 2011, and known as the *package*<sup>2</sup>. One of the four elements are *measures such as area-based management tools including marine protected areas*. The other three are marine genetic resources, including questions on the sharing of benefits; environmental impact assessments; and capacity building and the transfer of marine technology.

### Approach guidance and variation

In instances where the origin of an approach is grounded in a particular global or regional agreement, common understanding between Contracting Parties of the scope and design of an approach means that there tend to be similarities in its application, regardless of where it

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<sup>1</sup> Mandated in UN General Assembly resolution 72/249 <http://undocs.org/en/a/res/72/249>

<sup>2</sup> Described in UN General Assembly resolution 66/231 <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N15/187/55/PDF/N1518755.pdf?OpenElement>

is applied. For example, Particularly Sensitive Sea Areas (PSSAs), designated by the International Maritime Organization (IMO) to protect sensitive marine and coastal areas from the impacts of shipping, are applied around the world and have comparable designation criteria, management measures, and legal status in all locations.

Approaches derived from global agreements and processes are generally also supported by guidance documentation aiming to promote practical convergence on the design and application of the approach. Guidance can also be provided within a regional context, where regions are defined by dedicated agreements. For example, the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean. Examples of international guidance are provided below.

- The **Convention on Biological Diversity (CBD)** guidance on marine spatial planning (Secretariat of the Convention on Biological Diversity and the Scientific and Technical Advisory Panel –GEF, 2012);
- **The Intergovernmental Oceanographic Commission of United Nations Educational, Scientific and Cultural Organization IOC-UNESCO** step-by-step guide to marine spatial planning (Ehler and Douvère, 2009);
- International Guidelines for the Management of Deep-sea Fisheries in the High Seas by the **Food and Agriculture Organization of the United Nations** (FAO, 2009b); and
- Revised guidelines for the identification and designation of Particularly Sensitive Sea Areas (**International Maritime Organization**, 2006)

In contrast to the international level, where area-based management approaches are developed at national and sub-national scales (or substantially adapted from a globally defined approach), they demonstrate greater spatial variation in form and function. For example, many countries have nationally tailored marine protected area designations, which exhibit different designation criteria, designation processes and legal status from those used in other countries. Such variation is driven by the need to respond to local environmental and socio-economic needs. However, in the case of the European Union, diversity between Member States area-based management approaches is less pronounced as a result of regional guidelines and recommendations. Guidelines for the European region, for example the European Council Recommendation on Integrated Coastal Zone Management (The European Parliament and the Council of the European Union, 2002), reduce variability between area-based management approaches in this region by advocating an integrated approach.

Localised area-based management approaches tend to have fewer guidance documents as they are not necessarily implemented as part of an overarching framework approach. The

form and function of area-based management approaches is therefore highly variable between different local areas, countries and regions. Regardless, substantial contributions towards supporting the delivery of ocean-related SDGs and Targets can be made at all scales of approach implementation.

### Aim

The aim of this project is to review how the use of the area-based management approaches can contribute towards the delivery of SDGs and Targets. The review is based on a detailed examination of different types of area-based management approaches, represented by twenty-five case studies in a marine or coastal context from around the world. The review explores the attributes of area-based management approaches and how these support the delivery of SDGs. It also identifies enabling conditions and barriers that supported or inhibit the application of the area-based management approaches and uses lessons from the case studies to provide guidance on how these can be more effective. The report presents practical-evidence demonstrating the factors which influence the contribution to Goals and Targets. The findings of this report are summarized in a set of guidance points or recommendations on the use of area-based management approaches to contribute towards the delivery of SDGs and Targets.

### Review method

The work assessed how the aims of twelve different types of area-based management approaches contributed to (or are aligned with) the delivery of SDGs and Targets. Different approaches (described in **Table 1**) were chosen to ensure a global geographic coverage, and a wide range of different types of planning style. The review evaluated the twenty-five specific case studies where these area-based management approaches had been applied (see **Table 2** for details). See section below for more detail on the selection of the approaches and case studies.

Each case study was assessed to identify its contribution to forty-five SDG Targets (listed in **Annex 6.2**), pre-selected as being particularly relevant to ocean management, as identified by the International Council for Science (International Council for Science, 2017) and international experts. A structured and replicable method was applied to each case study using the analytical framework presented in **Annex 6.1**. In summary, each case study was reviewed to determine descriptive ‘facts of the matter’ (simple factual information), followed by a more complex analysis of the characteristics of each case study to determine its alignment with or contribution towards the delivery of each of the forty-five SDG Targets. Any influential factors affecting an approach’s tangible or potential contributions, including scale, sectoral focus, barriers and enablers, were noted and assessed.

This review recognises that SDGs post-date all but the most recent area-based management approach designations. Therefore, few area-based management approaches have **dedicated aims or provisions** specifically relating to the delivery of SDGs or Targets. However, many

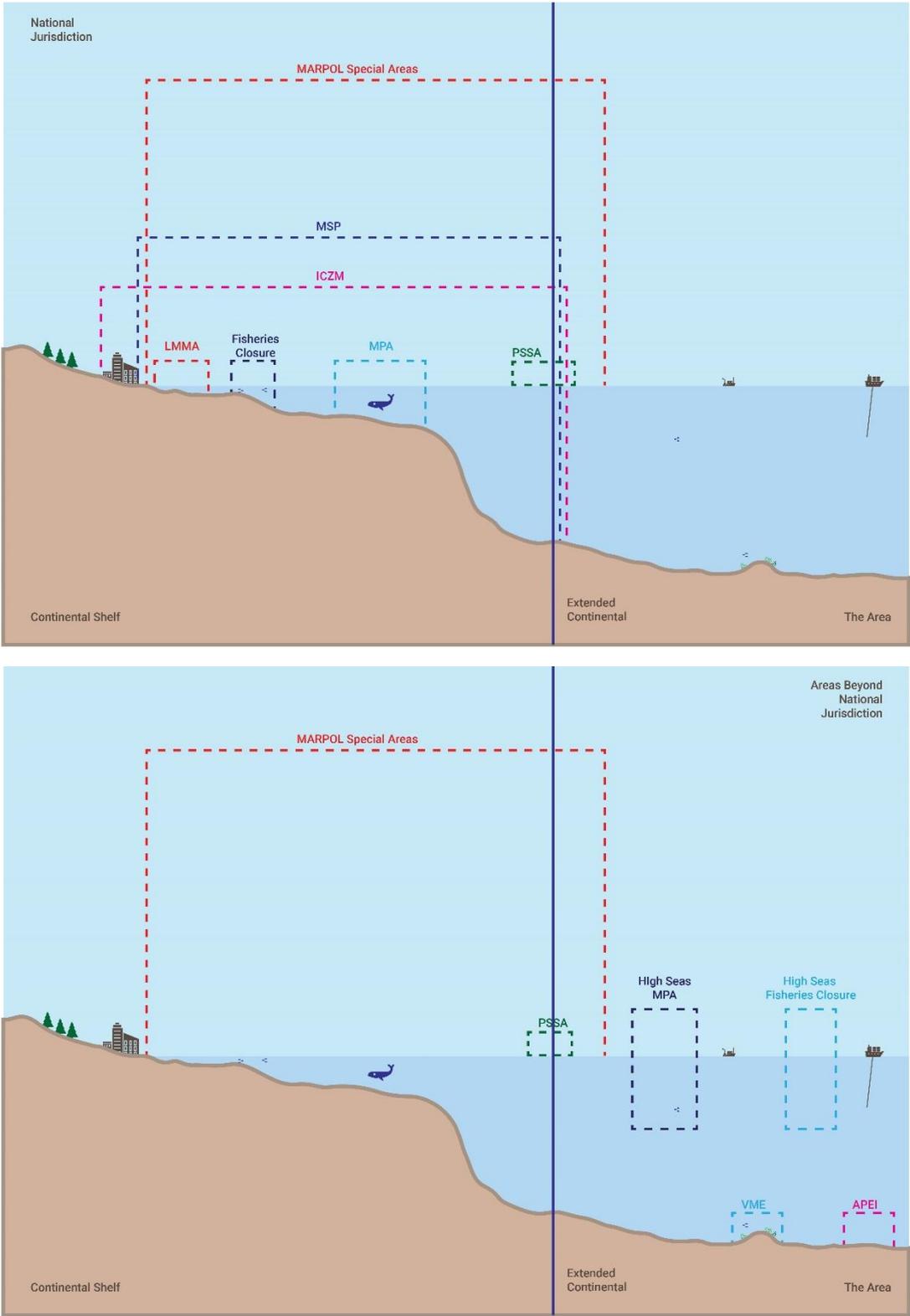
approaches seek policy objectives that are **aligned with** SDGs and/or Targets, particularly those related to the sustainable use of marine and coastal resources. As a result, many area-based management approaches are capable of indirectly contributing to SDGs and Targets through aligned policy objectives. In instances where the policy objectives of an objective were found to align with SDGs or Targets, this was considered evidence of the potential for such an approach to contribute towards the delivery of those Goals or Targets. Finally, for area-based management approaches that are sufficiently progressed into implementation, evidence was sought to identify tangible contributions to SDGs and Targets.

### **Selection of area-based management approaches and case studies**

The selection of area-based management approaches aimed to include those that were widely-used, were internationally accepted and support the conservation and sustainable use of marine and coastal resources directly or indirectly. The typical spatial coverage of such approaches is highlighted in **Figure 1-1**. The minimum requirement for the definition of an area-based management approach was its ability to generate management interventions for a defined area over a defined time. As such, approaches which seek to describe areas of importance, for example Ecologically and Biologically Significant Areas (EBSAs), Important Bird Areas (IBAs), Important Marine Mammal Areas (IMMAs) and Key Biodiversity Areas (KBAs), were not considered in this review as their overarching aims to do not include management interventions. Larger-scale approaches such as Ridge to Reef and Large Marine Ecosystems (LMEs) were included in the review as they provide an overarching framework to guide ecosystem-based management actions in a transboundary context.

Case studies were selected, based on available information, to be geographically representative of the previously chosen area-based management approaches around the world. The spatial setting, policy driver(s), management methods and intended outcomes were further influences on the selection of case studies. It should be noted that often these area-based management approaches are used in a nested way, with for example, Marine Protected Areas (MPAs) being included in Marine Spatial Planning (MSP) processes. The practical application of the area-based management approach in each case study was reviewed to determine barriers and enabling conditions to on ground application and the ability of the approach to support the delivery of ocean related SDGs in that context. The location and name of each case study reviewed are presented in **Figure 1-2** and **Table 2**, respectively.

**Figure 1-1: Illustrative spatial coverage of the area-based management approaches for within and beyond national jurisdiction**



\* The Area is defined as "the sea-bed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction" (Art 1, UNCLOS, 1994)

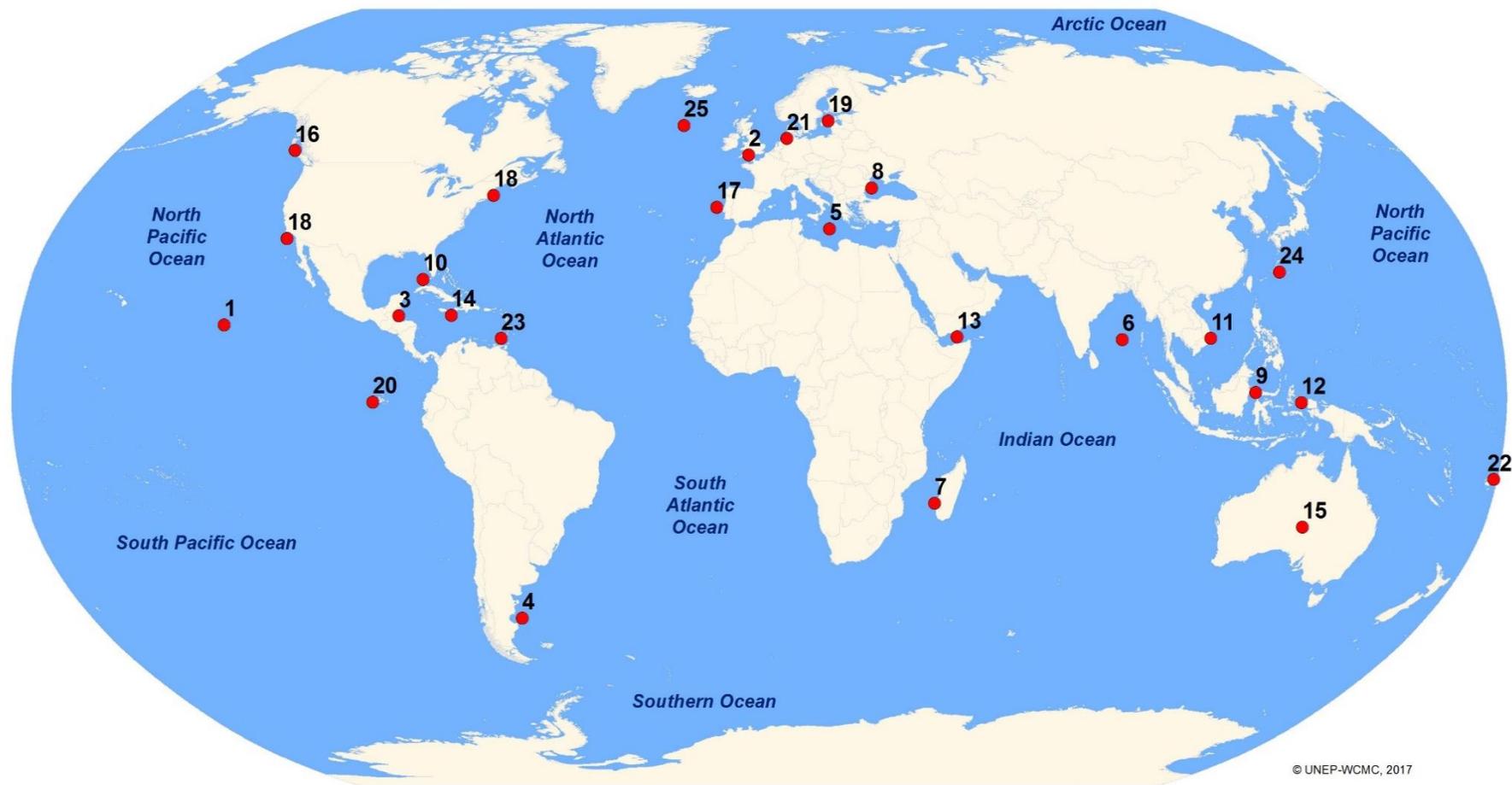
**Table 1: Area-based management approaches included in this study**

Area-based Management Approach	Description
Area of Particular Environmental Interest (APEI)	Areas of Particular Environmental Interest (APEIs) are management approaches used by the International Seabed Authority (ISA) and are unique to the Clarion-Clipperton Zone in the Eastern Pacific Ocean. APEIs are considered to be “representative seafloor areas that are closed to mining activities” in order to “protect biodiversity and ecosystem structure and function” (International Seabed Authority Legal & Technical Commission, 2012). These areas make up a system of protected sites that aim to include a “wide range of the habitat type present in the Clarion-Clipperton Zone” (International Seabed Authority Legal & Technical Commission, 2012).
Fisheries closure	“In a fishery management system, the closure to fishing by particular gear(s) of an entire fishing ground, or a part of it, for the protection of a selection of the population (e.g. spawners, juveniles), the whole population or several populations. The closure is usually seasonal, but could be permanent” (FAO, 2014).
Integrated Coastal Zone Management (ICZM)	“‘Integrated coastal zone management’ (ICZM) means a dynamic process for the sustainable management and use of coastal zones, taking into account at the same time the fragility of coastal ecosystems and landscapes, the diversity of activities and uses, their interactions, the maritime orientation of certain activities and uses and their impact on both the marine and land parts” (Protocol on Integrated Coastal Zone Management in the Mediterranean, 2009, Art. 2(f)).
Large Marine Ecosystem (LME)	“Large Marine Ecosystems (LMEs) are relatively large areas of ocean space of approximately 200,000 km <sup>2</sup> or greater, adjacent to the continents in coastal waters where primary productivity is generally higher than in open ocean areas” (NOAA, 2017a). The boundaries and extent of an LME are determined by four linked ecological, rather than political or economic criteria: bathymetry, hydrography, productivity and trophic relationships (Adapted from: (NOAA, 2017a)). The Large Marine Ecosystem approach is a way of promoting ecosystem-based management of coastal and marine resources within a framework of sustainable development (NOAA, 2017a).

Area-based Management Approach	Description
Locally-Managed Marine Area (LMMA)	A locally-managed marine area (LMMA) is an area of nearshore waters that is actively being managed in a 'local' practitioner context by residing or neighbouring communities and/or families, or being collaboratively managed by both resident communities and local government representatives based in the immediate vicinity of the LMMA. LMMAs are usually 'managed' to achieve local conservation and/or sustainable development objectives (NOAA, 2017b), (LMMA Network, 2016).
Marine Protected Area (MPA)	A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values (IUCN, 2008).
Marine Protected Area Networks and Systems	<p>Marine Protected Area Networks are “a collection of individual marine protected areas operating cooperatively and synergistically, at various spatial scales, and with a range of protection levels, in order to fulfil ecological aims more effectively and comprehensively than individual sites could acting alone.” (IUCN World Commission on Protected Areas, 2008).</p> <p>Similarly to a Network, a Marine Protected Area System is a group of individual marine protected areas, however these individual areas are not ecologically connected. Systems are created through the same process as Networks and can be applied in similar geographical areas. However, in some instances, the geographical management area is so vast that ecological connectivity is unlikely and so the group of Marine Protected Areas would be described as a System rather than a Network. Both marine protected area networks and systems engage multiple sectors to support their intended outcomes.</p>
Marine Spatial Planning (MSP)	“Marine spatial planning (MSP) is a public process of analysing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process” (Ehler & Douvere, 2009).
MARPOL Special Area	“MARPOL [i.e. the International Convention for the Prevention of Pollution from Ships] defines certain sea areas as “special areas” in which, for technical reasons relating to their oceanographic and

Area-based Management Approach	Description
	<p>ecological condition and to their sea traffic, the adoption of special mandatory methods for the prevention of sea pollution is required. Under the Convention, these special areas are provided with a higher level of protection than other areas of the sea.” (IMO, 2017) Six different types of ‘special areas’ exist, relating to different types of pollution including sewage and emissions (IMO, 2017).</p>
<p>Particularly Sensitive Sea Area (PSSA)</p>	<p>“A Particularly Sensitive Sea Area is an area that needs special protection through action by the International Maritime Organization (IMO) because of its significance for recognized ecological or socio-economic or scientific reasons and which may be vulnerable to damage by international maritime activities” (IMO, 2006).</p>
<p>Ridge to Reef</p>	<p>“Healthy and well-managed river basins and coastal areas where people and nature thrive, is the vision behind IUCN’s initiative, ‘Ridge to Reef’... Ridge to Reef aims to protect, demonstrate sustainable approaches, and provide better economic understanding of the links between salt and freshwater ecosystems” (IUCN, 2017).</p>
<p>Vulnerable Marine Ecosystem (VME)</p>	<p>The International Guidelines for the Management of Deep-sea Fisheries in the High Seas state that “the main objectives of the management of Deep Sea Fisheries are to promote responsible fisheries that provide economic opportunities while ensuring the conservation of marine living resources and the protection of marine biodiversity” (FAO, 2009).</p>

Figure 1-2: Location of the area-based management approach case studies included in this study



- Illustrative location of the area-based management approaches included in this study (see Table 2 for Key).

The boundaries and names shown and the designations used on maps do not imply official endorsement or acceptance by the United Nations Environment Programme or contributory organisations.

Table 2: Area-Based Management Approach Case Studies included in this Review

No.	Approach	Case Study	Location
1.	Area of Particular Environmental Interest	Clarion-Clipperton Zone Areas of Particular Environmental Interest	Mid-Pacific
2.	Fisheries closure and conservation area	Lyme Bay Reserve	United Kingdom
3.	Integrated Coastal Zone Management	Coastal and Marine Spatial Planning in Belize	Belize
4.		Patagonian Coastal Zone Management Plan	Argentina
5.		Mediterranean Integrated Coastal Zone Management Protocol	Mediterranean
6.	Large Marine Ecosystem	Bay of Bengal Large Marine Ecosystem Project (BOBLME)	Bay of Bengal
7.	Locally Managed Marine Area	Madagascar Locally Managed Marine Area Network (MIHARI)	Madagascar
8.	Marine Protected Area	Black Sea MPA network	Black Sea (Romania & Bulgaria)
9.		Caribbean Specially Protected Areas and Wildlife Protocol	Caribbean
10.		Florida Keys National Marine Sanctuary	U.S.A (Florida)
11.		Nha Trang Bay Marine Protected Area	Viet Nam
12.	Marine Protected Area System	Coral Triangle Marine Protected Area System	Coral Triangle
13.	Marine Protected Area Network	Raja Ampat Marine Protected Area Network	Indonesia
14.		Red Sea and Gulf of Aden Regional Marine Protected Area Network	Red Sea - Gulf of Aden
15.	Marine Spatial Planning	Marine Bioregional Planning	Australia
16.		Pacific North Coast Integrated Management Area (PNCIMA)	Canada - Pacific North coast
17.		Marine Spatial Planning in Portugal	Portugal
18.	MARPOL Emission Control Area	MARPOL North American Emission Control Area	North Atlantic

No.	Approach	Case Study	Location
19.	MARPOL Special Area - Sewage	Baltic Sea Special Areas for Sewage	Baltic Sea
20.	Particularly Sensitive Sea Area	Galapagos Archipelago Particularly Sensitive Sea Area	Galapagos (Ecuador)
21.		Wadden Sea Particularly Sensitive Sea Area	Wadden Sea (Netherlands)
22.	Ridge to Reef	Kubulau District Ridge to Reef	Fiji
23.		Grenada Ridge to Reef Project	Grenada
24.	Ridge to Reef through community based management	Nansei Shoto Ecoregion Ridge to Reef	Japan
25.	Vulnerable Marine Ecosystem	Mid-Atlantic Vulnerable Marine Ecosystem	North East Atlantic

## 2 The contribution of area-based management approaches to Sustainable Development Goals and Targets

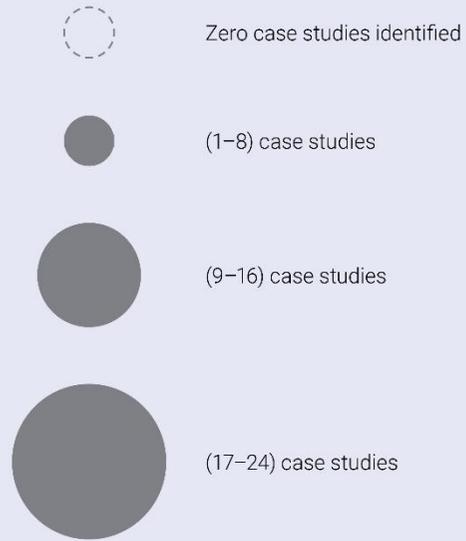
This chapter analyses how the application of the area-based management approaches, illustrated by twenty-five case studies, can support contributions towards the delivery of ocean-related SDGs and Targets. Different types of policy which are supported by area-based management approaches are also examined, and their alignment with the delivery of SDGs is illustrated. The area-based management approach, if effective, will generate outcomes relating to the implementation of a policy aiming to address an underlying issue or challenge, and ultimately, could contribute towards the delivery of SDG Targets.

The chapter discusses how the attributes of area-based management approaches make them suitable to support SDG delivery, and that different types of approach tend to contribute to a specific range of policy objectives. For example, the effect of spatial scale is important, with some approaches implemented on a large scale, and others at a local scale, often overlapping by design and used in a coordinated fashion. -Finally, the chapter addresses how area-based management approaches are able to deliver across multiple policy objectives, thus providing benefits to more than one SDG Target at the same time.

### **Figure 2-1: Contribution of area-based management approaches included in this study to forty-five SDG Targets reviewed.**

Circles represent the number of instances in which a particular approach objective in each of the case studies aligned with the SDG Target. Larger circles represent a greater number of case studies which aimed to achieve results against that specific target. Dashed circles indicate where potentially relevant Targets were assessed but not contributed towards by any of the 25 case studies. Results from the twenty-five case studies were merged and rounded into score ranges. \*This figure is context specific and is reflective of potential contributions of the twenty-five case studies reviewed here. It is therefore illustrative of the potential contributions of area-based management approaches applied. The design of future area-based management approaches will ultimately determine which SDG Target they are able to support.

## LEGEND



\*contributions are specific to the twenty five case studies reviewed in this study in the legend box

## 2.1 Area-based management approaches contribute to SDGs

Twenty-five case studies were reviewed to determine the contributions of area-based management approaches towards the achievement of SDGs and Targets. **Figure 2-1** (above) shows that across the approach case studies, policy objectives aligned with ten SDGs and thirty-nine Targets (of forty-five targets that were potentially relevant and assessed – equating to 87%). Alignment was determined by comparison of stated management approach objectives (determined from management plans) with the text of SDGs and Targets.

In many cases, individual area-based management approaches contributed to several different Goals and Targets, with many having considerable potential to contribute to SDG 14 (Life Below Water). As highlighted in **Figure 2-1**, all assessed Targets under Goal 14 were supported across the twenty-five case studies, in particular Target 14.2 which relates to the conservation and sustainable use of the oceans, seas and marine resources for sustainable development. However, **Figure 2-1**, demonstrates the potential for area-based management approaches applied in a marine or coastal setting to contribute towards not only SDG 14, but towards various other ocean-related and relevant targets of Agenda 2030. For example:

### Goal 8 Decent Work and Economic Growth

- Target 8.9 promoting sustainable tourism and promoting local culture

### Goal 12 Responsible Consumption and Production

- Target 12.2 on the sustainable management and efficient use of natural resources

### Goal 16 Peace, Justice and Strong Institutions

- Target 16.7 on participatory decision making

### Goal 17 Partnerships for the Goals

- Target 17.7 on partnership development

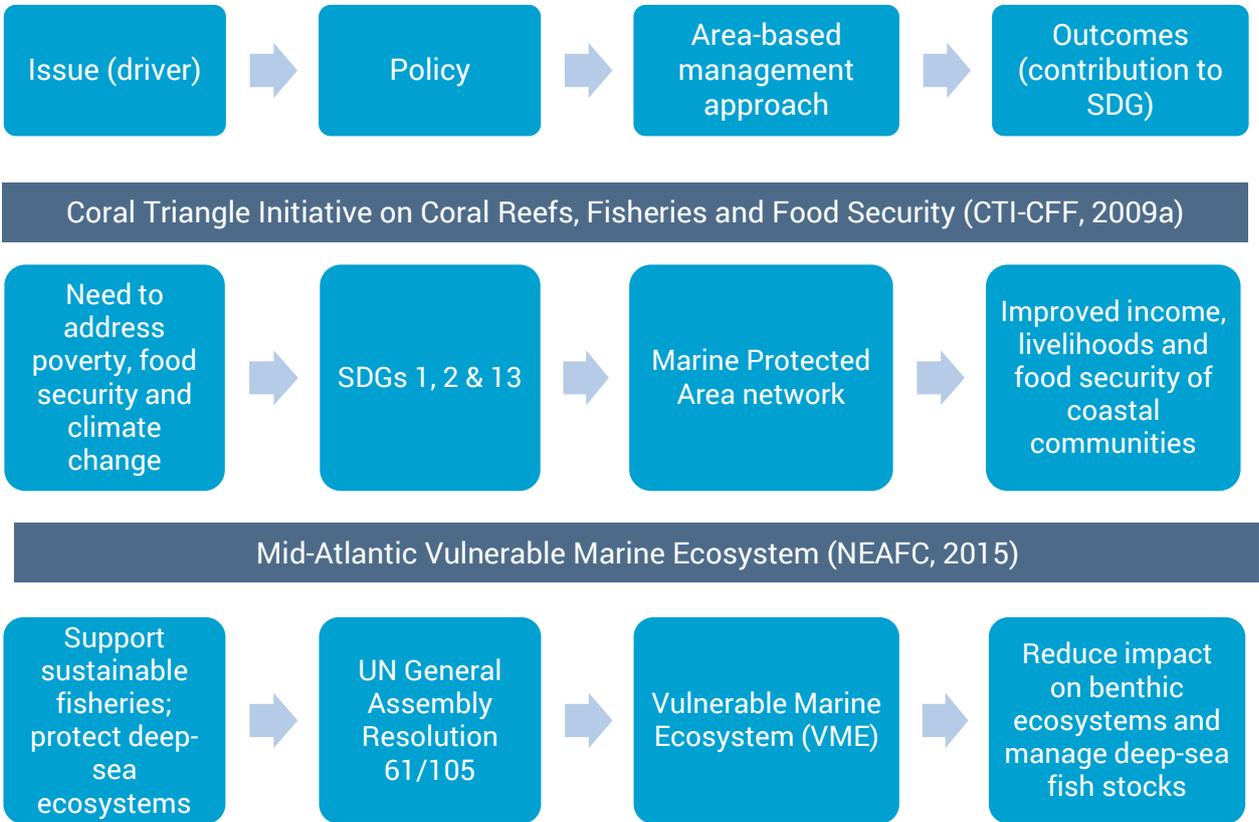
#### Key finding:

This study has found that marine and coastal area-based management can contribute towards a wide range of SDGs and targets, in addition to SDG 14 'Life below water'..

## 2.2 Drivers behind the use of area-based management approaches

The use of an area-based management approach is driven by the need to address a particular issue in a reactive or proactive manner. Often, the prevalence of such issues results in the creation of dedicated policies or resolutions which can be acted upon using area-based management approaches. Examples of such issues include, *inter alia*, the need to sustain fish stocks, address sources of marine pollution, or to conserve critical habitats. This pathway is demonstrated in **Figure 2-2** below, which was explored for each case study. Example drivers are also demonstrated.

**Figure 2-2: Pathway between management issue and outcome**



### Types of policies supported by area-based management approaches

Examples of policies applied through area based management approaches can be found in **Annex 6.3**, and the bullet point list below. It is important to recognise that other Targets, in addition to those noted, will also be supported by the policies and approaches detailed in the Annex. In many cases, area-based management approaches have not been in implementation for a sufficient length of time to demonstrate concrete ecological changes, or there is insufficient data collection regarding management measures, thus making it

difficult to assess the effectiveness of the management approach. A combination of approaches, or use of different approaches, may also support these policy areas.

Types of policies that can be implemented through area-based management approaches include:

- Societal engagement, including empowerment and engagement of local communities
- Conservation and sustainable management of natural resources to maximise economic gain
- Food security
- Preservation of cultural heritage and support of recreation and tourism
- Conserve health and resilience of the marine environment, biodiversity, and critical habitats
- Integrated development planning and capacity development activities
- Climate change adaptation
- Minimise marine pollution (including air pollution)

#### **Key Finding:**

Area-based management approaches are used to deliver a range of policies which align with SDGs and associated Targets. These can include societal engagement, sustainable management of natural resources, food security and climate change adaptation.

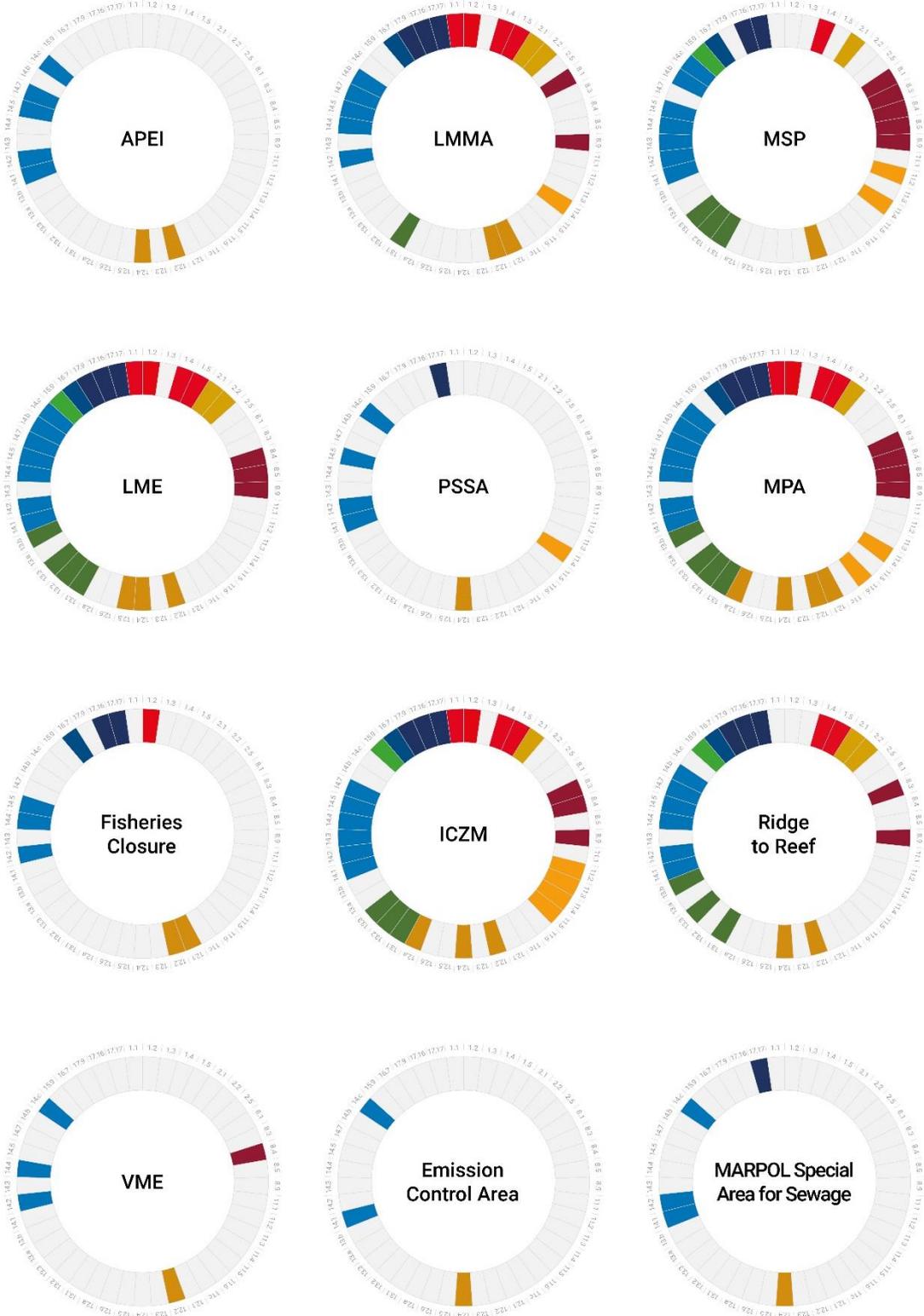
#### **2.2.1 Choice of Area-based management approach**

There are a range of area-based management approaches. This study reviewed 12 types of area based management approach and identified which SDG Targets they contributed towards, **Figure 2-3**. Unsurprisingly, approaches such as marine protected areas contributed to SDG 14 life under water. However it was found that it also had the potential to contribute towards Targets under Goal 8 on decent work and economic growth, Goal 12 on sustainable consumption and production, and Goal 17 on partnerships, among others. It can be seen that the single sector approaches generally have the potential to support few specific targets, as would be expected. Where an approach is cross cutting and involves multiple sectors, such as Integrated Coastal Zone Management, it is likely to be able to support on a wide range of Targets.

#### **Key finding:**

Different types of area-based management approaches have the potential to deliver different Targets. Some are designed to support the delivery of specific policies, and thus have the potential to support few, specific targets. Other types of approach aim to deliver upon a range of policies and are therefore cross-cutting across multiple SDGs and Targets.

**Figure 2-3: SDG Targets contributed towards by the various area-based management approaches.**



*\*Please note that these results are from twenty-five case studies and the targets possible for specific approaches will be site specific and depend on the objectives chosen and how it is applied.*

## 2.3 Management approaches used in combination to deliver policies

In many of the case studies reviewed in this analysis, different management approaches were used in combination to support the delivery of policies within a specified area, and thus SDG Targets. The management approaches are used in a complementary manner and are not in competition regarding the number of SDG Targets they have the potential to support.

In general, it is possible to say that approaches with a wider geographical scope, generally involve more stakeholders and have a greater number of policy objectives, and as a result can potentially contribute to more Targets. However, what is important to note is that larger scale approaches, such as Integrated Coastal Zone Management, often provide a framework in which other approaches are included. For example, site-scale management approaches, such as MPAs or Fisheries Closures, are included within the wider management approach.

### Management approach overlap by design

As noted above, multiple area-based management approaches are often applied within a specified area at the same time. For example, it is common to see a Marine Protected Area within a Marine Spatial Planning Framework, or Fisheries Closures linked to Protected Areas. Particular management approaches are often chosen based on their potential to address a policy issue, and therefore combinations of spatially overlapping management approaches can be highly effective. For example, Particularly Sensitive Sea Areas (PSSAs), Marine Protected Areas, and large scale integrated planning processes, such as Integrated Coastal Zone Management, may all overlap spatially to address pollution-related issues.

#### Area-based management approach coordination

In the **Pacific North Coast Integrated Management Area (PCNIMA) (Canada)**, Marine Protected Area (MPA) network planning is included as a key implementation priority within the overarching Marine Spatial Planning process. The ongoing MPA planning complements the overarching process via the collection of data from various sources, including the complimentary Marine Plan Partnership process.

In some cases, multiple single-sector approaches overlap. For example, in **Lyme Bay (UK)**, a Marine Protected Area and Fisheries Closure overlap in order to align objectives for sustainable fisheries and biodiversity. This combination is reasonably common and was also found in case studies from **the Coral Triangle** and **Kubulau District (Fiji)**, which combines traditional fisheries management with biodiversity protection (Kincaid, Rose and Devillers, 2017).

The **Wadden Sea** case study focuses on the **Particularly Sensitive Sea Area** designation. However, a variety of other management approaches are also implemented within the area. For example, protected area designations include a World Heritage Site encompassing one of the largest unbroken systems of intertidal sand and mud flats in the world (UNESCO, 2017); a Ramsar site for internationally important wetlands; and at a regional scale, the Wadden Sea is designated as part of the Natura 2000 protected areas network under both the Birds and Habitats European Directives. In addition to these biodiversity focused designations, fisheries management approaches are also in place throughout the region (Wadden Sea Secretariat, 2013b). To guide the planning of diverse regional activities, an Integrated Coastal Zone Management Strategy has been developed (Wadden Sea Forum, 2013). The variety of different activities, management approaches and national and regional values present in this area requires coordination to ensure effective planning and that all needs are respected. In response, a formal Trilateral Wadden Sea Cooperation, supported by a Secretariat, aims to “*achieve, as far as possible, a natural and sustainable ecosystem in which natural processes proceed in an undisturbed way*” (Wadden Sea Secretariat, 2013a).

Given the degree of spatial overlap between management approaches, and the drive for efficient and effective delivery of ocean-related SDGs, it is useful to reflect on opportunities for their focused application. In instances where the focus of an approach overlaps administrative boundaries, the use of a combination of different approaches can help to overcome issues of mandate and jurisdiction.

#### **Overlapping approaches to combine management mandates**

In the **Mid-Atlantic**, the North-East Atlantic Fisheries Commission (NEAFC) and the OSPAR Commission for the Protection of the Marine Environment of the North East Atlantic work collaboratively to provide collective management of the fisheries and environment sectors in the same space (OSPAR & NEAFC, 2015). Cooperation between these two organisations has been facilitated by the establishment of a *collective arrangement for cooperation (Target 17.16)*. The result is the designation of OSPAR **Marine Protected Areas** in the water column, overlapping, **Vulnerable Marine Ecosystems**, implemented by NEAFC, on the seabed. This example demonstrates the possibilities for effective management when two regional organisations, with differing mandates and operating at the same scale, coordinate their activities.

### Key finding:

Area-based management approaches may be used in combination and spatially overlap to achieve a range of policy targets. A management authority to coordinate the various approaches may be required.

## 2.4 The attributes of area-based management approaches determine the alignment of the approach with particular Sustainable Development Goals

Throughout the analysis, it became clear that certain attributes of area-based management approaches make them suitable to support the delivery of particular SDGs. A number of attributes, common to a variety of area-based management approaches, have been identified and are described in **Figure 2-4**. A comparison of the different attributes associated with each area-based management approach included in this study is presented in **Figure 2-5**. This section will focus on a selection of these attributes and examine their role in supporting the delivery of SDG Targets. The following attributes were considered in more detail:

- Spatial focus of approach (terrestrial and marine)
- Ecosystem-based management
- Stakeholder engagement
- Transboundary cooperation
- Sector focus

Practical examples from the case studies are provided for each section, and denoted by blue boxes throughout the text.

**Figure 2-4: Common attributes of area-based management approaches**



**🌊🏔️ Spatial Focus**

Marine area-based management approaches include those focused solely within the marine realm. Some approaches are focused across the coastal zone and encompass both marine and terrestrial areas, taking into account land use activities which may impact on downstream habitats and the ocean.

**🏭 Sector Focus**

Single sector approaches are implemented by a particular sector and implement management measures that apply only to the activities of that sector. Multi-sector area-based management approaches take into consideration the needs of multiple different sectors and implement measures that are applicable to all sectors involved.

**📊 Data foundation**

Data can be used to help inform and shape the application of an area-based management approach by providing spatially explicit information for the chosen area.

**📈 Adaptive management**

The management approach can be adapted in response to change. Adaptation should be based on best available evidence, collected through regular evaluation and monitoring processes.

**🌐 Transboundary Focus**

Transboundary area-based management approaches transect a border or boundary, including ecological, jurisdictional and administrative boundaries. Approaches can be applied at different scales, from local to international, recognizing the highly connected nature of the marine environment.

**🌟 Stakeholder Engagement**

Participatory stakeholder engagement involves the inclusion of affected stakeholders in planning, design and/or implementation of area-based management measures. Stakeholders could include, for example, representatives from local communities, marine sectors or government.

**🌿 Ecosystem Approach**

A strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (CBD, 2000).

**Figure 2-5: Examination of attributes of different Area-Based Management Approaches reviewed**

Approach	Approach Spatial Focus		Approach Sector Focus		Approach Attributes				
	Sea	Land	Multi	Single	Reliance on spatial data and analysis	Adaptive based on performance monitoring	Transboundary focus	Stakeholder engagement	Ecosystem-based management
Integrated Coastal Zone Management (ICZM)									
Ridge to Reef									
Large Marine Ecosystem (LME)									
Locally Managed Marine Area (LMMA)									
Marine Spatial Planning (MSP)									
Area of Particular Environmental Interest (APEI)									
Fisheries Closure / Management Area									
Marine Protected Area (MPA)									
MARPOL Special Area									
Particularly Sensitive Sea Area									
Vulnerable Marine Ecosystem (VME)									

### 2.4.1 Spatial focus of Approach

#### Consideration of land and sea for integrated management

Of the types of approach considered in this review, two multi-sector approaches have a geographical remit that includes both land and sea areas; Integrated Coastal Zone Management (ICZM) and Ridge to Reef approaches. In some instances, this can also apply to Marine Spatial Planning approaches. For example, the EU MSP Directive (2014/89/EU) requires consideration of the land-sea interface in planning processes. Such approaches facilitate consideration of the dynamics at the land-sea interface to support timely and integrated management measures in response to specific issues, for example land-based pollution and associated

impacts on coastal habitats – potentially contributing towards **SDG Target 14.1**. In addition, integrated land-sea approaches can support the inclusion of – and cooperation between – a variety of relevant terrestrial, coastal and marine stakeholders in decision-making and the development and implementation of management measures – thus contributing towards **SDG Targets 16.7** on participatory decision-making, and **Targets 17.16 and 17.17** relating to partnerships for sustainable development. Integrated land-sea approaches may build upon or create synergies between existing land and sea management approaches in order to encourage more effective and holistic management of coastal areas. Such approaches thus have the potential contribute directly towards a range of SDG targets, including indirect contributions to **targets under SDG 2** on food security through more sustainable management of coastal resources and **SDG13** on climate change through the conservation and sustainable management of important coastal carbon sinks, for example mangroves and seagrass beds.

Across the globe, coastal regions are subject to a suite of pressures due to dense populations and intensive anthropogenic development and activities. For example, 27% of the world's population live near the coast on 9% of the global land, and over half of the world's largest cities are located on the coast (Kummu et al., 2016). Population-driven pressures include, *inter alia*, resource use, destruction or modification of natural habitat and the generation and

#### Integrated land-sea management: Ridge to Reef Projects

A marine area-based management approach that includes terrestrial and marine environments has the potential to address land-based pollution issues within its management area. For example, the **Ridge to Reef projects in Grenada and Nansei Shoto, Japan**, encompassed inland river catchments in their management remits. Both approaches adopted management measures to reduce run-off of land-based pollutants adversely impacting coastal ecosystems, including coral reefs, contributing to **Target 14.1** (Ministry of Environment Government of Japan, ICRI and WWF, 2015).

mismanagement of waste products and land-based pollution, and can result in widespread environmental degradation of coastal areas (Kummu *et al.*, 2016).

Area-based management approaches have the potential to address issues in the context of reducing the impact of coastal cities on marine and coastal areas. Management in such a way would therefore have the potential to contribute towards **SDG Target 11.6** relating to the environmental impact of cities, **Targets 12.4 and 12.5** on waste management and **Target 14.1** on land-based sources of pollution.

#### **Florida Keys National Marine Sanctuary: wastewater management in coastal cities**

In the **Florida Keys National Marine Sanctuary (FKNMS)**, land-based pollution from nearby settlements has been identified as a threat to the health of marine habitats in the Sanctuary. In response, specific strategies for domestic wastewater, storm water and landfill have been integrated into a Revised Marine Management Plan for the Sanctuary (FKNMS, 2007). The wastewater strategies, for example: support the enforcement of existing standards through inspection and compliance programmes; promote research to set nutrient reduction targets; drive the development of water quality standards and indicators; and advance engineering solutions such as regional wastewater treatment plants. In relation, water quality in the Florida Keys has been monitored under the Water Quality Monitoring Program since 1995, feeding directly into the review of the Sanctuary Management Plan. As part of management responses to water quality pressures, local authorities are upgrading their wastewater infrastructure to provide improved wastewater treatment and reduce land-based impacts on the marine environment, thus supporting the delivery of **SDG Targets 11.5, 12.4, 12.5 and 14.1** (Office of National Marine Sanctuaries, 2011).

As illustrated by the case studies, it is apparent that area-based management approach which transect the land-sea interface, can align with many SDGs and Targets. Therefore, these approaches have the potential to contribute to the delivery of a greater number of goals in comparison to marine– or terrestrial– specific approaches.

#### **Consideration of scale of approach**

In addition to the spatial focus of an area-based management approach, the scale at which it is applied can influence its ability to delivery upon different types of coastal and marine policy. For example, larger scale frameworks can support the delivery of area-based management approaches at the international, regional and national level by providing overarching guidance or setting targets for implementation. The design of large-scale framework approaches may also aid implementation on smaller, local or community scales.

In the Mediterranean example (below), a regional framework has been established, which is then implemented by countries at the national level through national legislation.

### **Mediterranean ICZM implemented at national level**

**The Protocol on Integrated Coastal Zone Management in the Mediterranean** (ICZM Protocol, 2011) provides a regional framework to implement obligations relating to integrated coastal management set out in Article 4.3 of the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (1978), to which there are twenty-two Contracting Parties ([European Commission, 2018](#)). To effectively guide actions at local levels, it is important that the ICZM approach advocated in this regional framework is endorsed at the national level (Soriani, Buono and Camuffo, 2015). For example, through the development of complimentary national legislation to guide action in-line with regional obligations. In this case, a 2010 survey found that 33% of the Mediterranean region had legislation in place, with 38% progressing towards the development of legislation (Shipman and Petit, 2010). At present (2018), 11 contracting parties (10 countries and the European Union) have ratified, approved or adhered to the Protocol ([PAP/RAC, 2018](#)).

In **Lyme Bay Reserve (UK)**, legal measures prohibiting bottom trawling were introduced to protect the reef, and consequently, the abundance of reef-associated species such as scallops has increased (**Target 14.2**). Fishing via less invasive method, including lobster potting and scuba diving for scallops and crabs, is permitted and regulated (**Target 14b**). Stakeholder engagement was important for the development of management measures, and the establishment of relationships has led to *“increased compliance, peer enforcement and collective learning”* amongst users (Singer, 2016). Benefits, such as increased economic benefit to— and job satisfaction in— the area (i.e. via collaborative, sustainable branding ventures such as “Reserve Seafood”), and decreased used conflicts have been noted in the reserve (Singer, 2016). However, it is important for area-based planning processes to recognise and consider potential trade-offs of management measures. In this example, bottom trawling groups were displaced outside the reserve, with potentially negative impacts for this group, such as lower income or increased stress.

### 2.4.2 *Transboundary cooperation*

Area-based management approaches can encourage and support transnational cooperation and partnerships, thus contributing to various SDGs. This can occur through the establishment of voluntary partnerships or governance frameworks with a legal basis.

Area-based management approaches may require transboundary cooperation between countries if the issues they are seeking to address, or the policies they aim to deliver, are international in nature. For example, migratory marine mammals transect many countries' jurisdictions and therefore require transboundary planning approaches to ensure effective management across their entire range. Area-based planning can support transboundary management between countries with adjacent Exclusive Economic Zones, and also where management is required across the boundary between national and international waters. There are also examples of cooperation in areas beyond national jurisdiction, where regional organisations have specific mandates, supporting SDG **Targets 14.2** and **14.c**.

#### **Regional cooperation for Marine Protected Areas**

In the Caribbean region, the Cartagena Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region (WCR) and its associated Protocols constitute a legal commitment by 25 countries to protect, and manage their common coastal and marine resources individually, jointly, and in a sustainable manner. The Specially Protected Areas and Wildlife (SPAW) Protocol, ratified by 16 Parties provides a regional legal framework to protect, preserve and manage in a sustainable way, areas that require protection to safeguard their special value; and threatened or endangered species of flora and fauna. Under SPAW protocol 16 of the 25 Contracting Parties to the Cartagena Convention adopted provisions for the design of ecologically connected Marine Protected Areas in a dedicated Marine Mammal Action Plan (UN Environment, 2008). The provisions recognised the migratory nature of marine mammals in the region, which includes over 30 species of whales, manatees and seals travelling to the area for feeding, mating and birthing, and aim to provide transboundary protection for such species, thus supporting the delivery of **Target 14.2**.

#### **International cooperation for comprehensive management**

In the **North-East Atlantic region**, two competent international organisations have management mandates: the North-East Atlantic Fishery Commission (NEAFC) (a Regional Fisheries Management Organisation (RFMO)) and the OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic (a Regional Seas Convention). Co-ordinated area-based management between the two organisations occurs

via a “collective arrangement” on cooperation and coordination regarding selected areas beyond national jurisdiction in the North-East Atlantic (OSPAR & NEAFC, 2015) (**Target 17.16**). Cross-sectoral cooperation and coordination aims to ensure comprehensive protection of these areas. Specifically, NEAFC has designated the **Mid-Atlantic Vulnerable Marine Ecosystem (VME)**, and OSPAR has designated High Seas Marine Protected Areas in the water column. The VMEs include management measures relating to the protection of the seabed from the adverse impacts associated with fisheries activities and the MPAs include management measures (provided by OSPAR recommendations) providing three dimensional protection from non-fisheries related pressures, such as pollution (**Target 14.2**) (OSPAR Commission, 2013). Thus the two approaches combine allowing more comprehensive management approach.

### 2.4.3 *Ecosystem Approach*

#### **Ecosystem conservation and restoration can provide a foundation for effective area-based management**

The ecosystem approach (including ecosystem conservation and restoration) is considered a key component of area-based management approaches and an ecosystem approach is advocated in many international or regional guidelines on management approach design and implementation. For example, Marine Spatial Planning (IOC-UNESCO, 2009; European Union, 2014), Integrated Coastal Zone Management (European Commission, 2009) , Marine Protected Areas (IUCN, 2008; Day et al., 2012, Lewis et al. ,2017), and the Ecosystem Approach to Fisheries (FAO, 2010).

SDGs 14 and 15 focus on marine and terrestrial ecosystems, respectively and encourage an ecosystem-based approach to management. The term ‘ecosystem’ is relevant to a number of Targets under these goals and highlighted specifically in **SDG Target 14.2** (to sustainably manage and protect marine and coastal ecosystems) and **Target 15.9** (which calls for ecosystem values to be integrated into planning). As such, many area-based management approaches are intrinsically designed to identify, and integrate into the planning process, ecosystems and ecosystem processes or services that may be vulnerable to human activities. At a basic level, ecosystem based-approach is aiming to include the important underpinning ecosystem into planning processes. For example, ensuring fish stock maintenance through zoning measures to protect seagrass beds that are nursery grounds for commercially caught fish. The inclusion of such considerations can aid the development of appropriate and effective management measures through the provision of ecological information which can ultimately contribute both directly and indirectly to SDG Targets.

#### **Ecosystem-based management can guide area-based management approach implementation**

Ecological information, such as oceanic currents, species habitat ranges or migratory mammal routes, can be used to identify areas in which management measures may be required and also to inform the boundary definition or spatial extent of management measures. Specific area-based management targets can also be focused on particular ecosystems, supporting the delivery of **SDGs 14 and 15**. In practice, the spatial boundaries of area-based management approaches are often based on administrative boundaries, within which management measures can be implemented. In the case of Fiji (below) ecological and political boundaries are similar, thus allowing activities affecting marine and coastal ecosystems to be appropriately managed in line with jurisdictional powers. In some cases, such as Belize, Argentina or Australia, the national area in which an area-based management approach can be applied is so large that it encompasses entire ecosystems and the threat afflicting them. It is therefore possible to undertake area-based management using an ecosystem approach for the entirety of sovereign maritime jurisdictions.

<b>Ecosystem-based management boundaries</b>	
<p><b>Large Marine Ecosystems (LME)</b> - large areas (over 200,000 km<sup>2</sup>) of highly productive coastal waters adjacent to continents – are identified and delineated using four environmental criteria, irrespective of jurisdictional boundaries: (i) bathymetry; (ii) hydrography; (iii) productivity; and (iv) trophic relationships. At present, 64 LMEs have been identified (NOAA, 2017a) and management measures have been developed based upon transboundary ecosystem conservation priorities. For example, the <b>Bay of Bengal LME</b> is being considered for funding to improve regional environmental and fisheries management to support coastal communities which may support <b>Targets 14.9 and 15.9</b>.</p>	<p>In <b>Fiji</b>, the spatial coverage and boundary of the <b>Kubulau District Ridge to Reef</b> approach are based upon traditional district units and customary fishing ground boundaries. The approach recognises the inclusion of ridge to reef units within traditional land tenure boundaries and aims to bring together communities from both upland and lowland areas to facilitate holistic community management of ecosystems (Jupiter, 2011). These approaches thus have the potential to support the delivery of <b>Targets 12.2, 14.2 and 15.9</b>.</p>

#### 2.4.4 Sectoral focus

##### The sector focus of area-based management approaches influences contribution to SDG Targets.

As highlighted in **Figure 2-5** above, area-based management approaches can focus on multiple or single sectors. The sectoral focus of an approach reflects its policy ambitions. For example, some approaches are fairly narrowly focused to address specific issues or areas of policy relating to a single sector. Examples include, *inter alia*, the use of fisheries closures which relate specifically to the fishing sector, or Particularly Sensitive Sea Areas which apply to shipping activities only.

##### Single sector approaches to address sewage discharge in the Baltic Sea

The **Baltic Sea** is designated under MARPOL as a **Special Area for Sewage** – an area in which management measures and regulations prohibit the discharge of untreated sewage into the Baltic Sea and require ships to use port disposal facilities. Management measures are implemented by Contracting Parties to the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea for the Baltic Marine Environment (HELCOM) – the coordinating institution supporting this designation. In order to take effect, the Special Area designation required all Baltic countries to notify the International Maritime Organization (IMO) of the existence of adequate port reception facilities – this occurred in 2016 (HELCOM, 2015). Through coordinated action, guided by HELCOM, this management approach has thus facilitated the review– and improvement–of port sewage reception facilities in each of the Baltic Sea Countries. Changes in sewage release rules will be applied from 2019 for new ships and from 2021 for existing ships, and therefore the success of this area-based management approach is not yet in a position to be evaluated. However, this management approach has galvanised collective actions across the region to improve port infrastructure enabling future pollution reduction (HELCOM, 2017), demonstrating the potential for contributions towards **Targets 12.4, 14.1 and 14c**.

##### Multi-sector approaches for national level marine and coastal planning

In **Belize**, an **Integrated Coastal Zone Management Plan** was developed under the Coastal Zone Management Act (1998). Plan development, led by the Coastal Zone Management Authority and Institute (CZMAI), was undertaken over a six year period and involved extensive multi-stakeholder participation to ensure management measures were multi-sectoral in nature (**Target 16.7 and 17.16**) (Verutes *et al.*, 2017). Participating sectors included, *inter alia*, extractive and non-extractive uses, commercial fishing, environment, heritage and tourism. The Plan aims to improve management of coastal and marine ecosystems for the maintenance of ecosystem integrity and provision of ecosystem services into the future via an integrated approach (CZMAI, 2016). As such, the Plan

implements socio-economic and environmental policies aiming to ensure sustainable coastal resource use through balancing conservation and socio-economic needs of the country (**SDG 8** and **SDG 12**).

From the case studies, it has been found that multi-sector approaches, such as Marine Spatial Planning, can contribute to a wide range of SDG Goals and Targets. Nineteen multi-sectoral approaches reviewed in this analysis contributed towards, on average, fourteen Targets. Comparatively, the six single sector approaches contributed to a narrower range of five Targets on average.

It is important to recognise that this analysis does not suggest that multi-sector approaches are more important than single sector approaches. In fact, multi- and single- sector approaches are often used in conjunction to achieve comprehensive management, as is discussed in the next section.

#### **Key finding:**

A number of key attributes identified are recommended for consideration in the design of area-based management approaches to support the achievement of SDGs. Attributes are interlinked and should be considered as a package. Attributes include, stakeholder engagement, an ecosystem-based approach and transboundary cooperation.

#### **2.4.5 Stakeholder Engagement**

**Area-based management approaches can facilitate stakeholder engagement and communication.**

This section identifies how stakeholder engagement, as an attribute of area-based management approaches, can support the delivery of SDG Targets. For details on how stakeholder engagement can be undertaken, and enabling factors, please see Section 3.5.

Stakeholder engagement and inclusive decision-making are facilitated via processes to develop, implement and monitor management plans developed as part of area-based management approaches. The use of area-based management approaches also provides coastal communities and stakeholders with a common reason to engage with each other to obtain mutual benefits. For example, to collectively address issues of pollution or illegal fishing. As such, area-based management approaches which encourage stakeholder engagement have the potential to support SDG targets related to the issues being addressed by the approach (for example **Target 2.1** on food security or **Target 14.1** on pollution), and also directly support Targets relating to justice (**SDG16**) and partnerships (**SDG17**).

### Stakeholder engagement to promote ecosystem conservation

In the **Grenada Ridge to Reef Project**, participation of local inland and coastal stakeholders in a co-management approach has facilitated transboundary management. Local community stakeholders have participated in a series of workshops, consultations and training, and educational initiatives about environmental management. Engagement activities have helped to raise awareness of issues that transcend inland and coastal boundaries to affect marine and coastal ecosystem health, and have helped establish dialogues between, and empower inland and coastal communities relating to environmental management (**Targets 14.1, 16.7 and 17.17**). For example, the Reef Guardian Stewardship Program recognises, implements and promotes good environmental practices through educational and training workshops (for example, proper fertiliser application techniques) and recognition of sustainable and environmentally friendly farming practices (Ministry of Environment Government of Japan, ICRI and WWF, 2015). Additionally, educational tours to the inland Beausejour watershed, a farm belonging to a farmer who is part of the Reef Guardian programme and the Moliniere-Beausejour Marine Protected Area downstream, are used to educate school children and raise awareness of how inland activities affect coral reefs downstream (Grenada R2R Project, 2016).

### Partnerships are key to success

Area-based management approaches can support stakeholder engagement through the establishment of multi-stakeholder partnerships during the development and subsequent implementation of a management plan (**Target 17.17**). These partnerships also provide a forum for ongoing participation and decision-making on management issues (**Target 16.7**).

### Partnerships for sustainable development

In the **BOBLME Project** to develop a regional programme to address regional priority marine issues, a wide range of stakeholders, including local communities, governments, academic and technical experts, and NGOs, were consulted and participatory decision-making was undertaken (**Target 16.7**) (BOBLME, 2011). In addition, the creation of multi-sectoral National Task Forces to foster cooperation and coordination, supported the identification and implementation of specific regional and national actions under a Strategic Action Programme. Task forces represent partnerships for sustainable development (**Target 17.7**) and comprised representatives from government ministries, international and national NGOs, international development agencies, university researchers, public and private research institutions, the private sector and civil society organisations (BOBLME, 2011).

The **Velondriake Locally Managed Marine Area** is located within the wider **Madagascar Locally Managed Marine Area Network (MIHARI)**. This Network facilitates partnerships between NGOs, policy-makers (government departments), local management organisations and local communities. The creation of a participatory information sharing network facilitated cooperation between the managers of over 150 LMMAs throughout Madagascar (A. Harris, 2017) and encouraged the sharing of lessons and best practice approaches to community managed Marine Protected Areas. A [web-based platform](#) has been created to support this Network. As such, the project is supporting the delivery of **Target 17.16** by mobilising partnerships to share knowledge and expertise.

The **Florida Keys National Marine Sanctuary** has teamed up with NOAA's Office of National Marine Sanctuaries, Catlin Seaview Survey and Google. The Catlin Seaview camera is being used to document reef conditions in the sanctuary. The special high resolution camera allows scenes to be stitched into 360 degree panoramas for eventual release on Google Street View (NOAA, 2014). This is an example of a partnership (**SDG17**) which has the potential to deliver monitoring results supporting conservation action.

### Area-based management approaches can clarify rights and facilitate access

The application of management measures to a specific area requires the identification of rights holders. In instances where rights holders are unclear, area-based management approaches can assist in clarifying land, resource or management rights via stakeholder engagement processes. Similarly, where the nature of the rights are unclear or non-transparent, area-based management approaches can assist in clarifying and improving transparency to wider stakeholders. Rights clarification contributes to **SDG Target 1.4** which advocates "*equal rights to economic resources...ownership and control over land and other form of property*", and **Target 14b** which supports "*access for small-scale artisanal fishers*" to marine resources. Given the potential for rights disputes to cause tension between stakeholders when discussing sustainable development, the clarification of rights through an area-based management approach has the potential to reduce conflict and promote effective co-existence.

### Management to support rights clarification, conflict resolution and sustainability

In the **Pacific North Coast Integrated Planning Area (PNCIMA) (Canada)**, a participatory planning process was undertaken to support the achievement of mutually acceptable planning, stewardship and management of resources in the area (**Target 16.7**) (PNCIMA Initiative, 2017a). To achieve this, a collaborative partnership between federal, provincial,

and Indigenous First Nations governments was established to develop a strategic management plan (**Target 17.17**) (PNCIMA Initiative, 2017a). Many First Nations assert indigenous title rights, including ownership, jurisdiction and management over the land, water and resources throughout their territories. The strategic management plan thus operates within a multi-jurisdictional management context to respect existing legal and administrative jurisdictions and rights (**Target 1.4**).

## 2.5 Implementation mechanisms provide a framework for action

A fundamental element of many area-based management approaches is the development of a management plan to guide management measure implementation. Many SDGs identify the production of plans as a mechanism for their delivery. For example, plans can help deliver sustainable consumption and production under **SDG 12** or “*science-based management plans*” can be developed to “*regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices*” under **SDG 14**.

In this study, management plans were found to be the primary vehicle to direct management efforts towards supporting the delivery of SDGs and Targets. Each area-based management approach has its own plan, specifically tailored to meet the policy ambitions behind the identification of the area as important or special. Given the potential contribution of area-based management plans to SDGs and Targets, a key mechanism to enhance this contribution is to design comprehensive plans, which denote specific indicators to track implementation effectiveness. Where multiple area-based management plans exist for the same area, it is important that management measures in each plan are aligned and are complementary, as this could assist in supporting a wider range of SDGs.

At the national level, different types of plan exist and many have been established under wider regional or global conventions or frameworks. Examples include; Integrated Marine and Coastal Management Plans under the Integrated Coastal Zone Management Protocol for the Mediterranean Region, National Adaptation Plans (NAP) and Nationally Determined Contributions (NDC) for

### An effective management plan is supported by clear actions and indicators

In **Portugal, Maritime Spatial Planning** is a key mechanism for the delivery of the National Ocean Strategy 2013-2020. In the current iteration of the National Ocean Strategy, it is highlighted that the effectiveness of the previous Strategy could not be evaluated due to the lack of two critical features: an action plan and matrix of indicators for tracking progress. It was also recognised that the existence of an Action Plan, with allocated responsibilities, can facilitate the adaptation of national Strategies based on monitoring results for specific targets. Consequently, an Action Plan for the most recent Strategy, has been created as a separate document, the Mar-Portugal Plan (MPP) (**Target 15.9**) (Governo de Portugal, 2014).

climate change under the United Nations Framework Convention on Climate Change (UNFCCC), or National Biodiversity Strategies and Action Plans (NBSAP) under the Convention on Biological Diversity (CBD).

**Key finding:**

Implementation mechanisms, such as management plans, underpin effective area-based management approach implementation. Plans ideally need to include actions, clear roles and responsibilities and indicators to track progress.

## 2.6 Maximising efficiency

The seventeen SDGs and associate targets were developed with the intention that they would be considered an integrated package of Goals, whereby contributions to one Goal or Target may also directly or indirectly contribute to another. As stated by the preamble to the 2030 Agenda, the SDGs “*are integrated and indivisible and balance the three dimensions of sustainable development*” (United Nations, 2015). Area-based management approaches are able to realise synergies, or efficiencies, in supporting the achievement of different SDG Targets. Achieving synergies involves exploring how aligning management processes can create a cumulative benefit that is greater than the sum of the individual benefits. The overall aim is to make management more effective and efficient (UNEP, 2015).

The analysis illustrates that area-based management approaches are able to support, not only **SDG 14** (Life Below Water), but the delivery of other Goals as well. From the case studies, it is possible to identify where management approaches are mutually supportive. For example, **Target 12.2** on sustainable management and efficient use of natural resources, and **Target 8.9** on promoting sustainable tourism and local culture, were simultaneously delivered in Marine Bioregional Planning Process undertaken for the Australian Exclusive Economic Zone. The delivery of a specific target is likely to contribute towards the simultaneous delivery of other targets. For example, management measures supporting **Target 12.5** on reduction of waste is likely to also contribute towards **Target 14.1** on prevention of land based sources of pollution.

**Key finding:**

Use of an area-based management approach to support one SDG Target can indirectly contribute towards others. Recognition of where activities can have a cumulative effect occur may support greater on the ground impact. For example, sustainable management of fish stocks under Target 14) can also support targets under SDG 2 on food security and SDG 8 on sustainable consumption

## 3 Enabling conditions and barriers influencing the implementation of area-based management approaches

Chapter 2 has demonstrated that marine and coastal area-based management approaches can contribute to ocean-related SDGs and Targets. However, barriers and enabling conditions exist that affect the ability of management approach contributions to SDG Targets. This section draws evidence from the twenty-five case studies to identify various barriers and enablers to the effective application of area-based management approaches. Where available, lessons learned from these case studies are noted. This section is organised around the following themes:

- Spatial scale
- Legal basis of the area-based management approach
- Funding
- Institutional framework
- Stakeholder and multi-sector engagement
- Adaptive process
- Data collection and monitoring

### 3.1 Spatial scale

The choice of which approach is implemented, and the spatial scale needed, will depend on the policy the area-based management approach is aiming to deliver. For example, if the focus of the policy is to manage diffuse pollution from many sources, then management approaches that can be applied on a large scale, such as a MARPOL Special Area, would be appropriate. If the aim is to address local pollution impacts on coral reefs, a site-level Marine Protected Area may be more appropriate. The following sub-sections discuss the barriers and enabling conditions related to scale.

#### North American MARPOL Emission Control Area

The **North American MARPOL Emission Control Area** (a type of 'Special Area') is a transnational effort between different countries that share maritime areas and are all affected by international shipping pollution in a similar way. In this instance, large-scale air pollution. The Emission Control Area, was established following a proposal by the Governments of Canada and the USA, (with support from France due to the territory of Saint-Pierre et Miquelon), in an effort to address air pollution from shipping across the

region. Within the area, emissions limits for Nitrogen Oxide (NO<sub>x</sub>) and Sulphur Oxide (SO<sub>x</sub>) apply to shipping activities. Mechanisms for compliance include the use of low sulphur fuel oils or through engine modifications (**Targets 12.4 and 14.c**) (IMO, 2017).

### 3.1.1 *Regional Cooperation*

Regional cooperation can provide an overarching legal framework and policy direction to guide national level planning. Some case studies demonstrate regional cooperation between different countries in the implementation of area-based management approaches. For example, Portugal was able to establish the legal basis and policies for Marine Spatial Planning for its entire maritime area, including its extended continental shelf, through the regional framework provided by the 2014 **European Commission Directive on Maritime Spatial Planning**. It is however, important to note that whilst a regional framework can enable planning at the national level, differences in country capacity (e.g. institutional, financial, technical or human) affect their capability to develop and implement measures in line with overarching regional approaches. Further examples of regional cooperation are illustrated below.

#### **Regional cooperation through Marine Protected Area planning**

Prior to the **Bay of Bengal Large Marine Ecosystem (BOBLME) Project**, existing international, regional and sub-regional bodies and programmes operating in the area lacked a clear mandate, geographical scope and national institutional capacity to support regional efforts to address transboundary issues (**Targets 17.9 and 17.16**) (BOBLME, 2015a, 2017). To address these challenges, the BOBLME Project, which aims to improve the lives of coastal populations via improved regional management of the Bay of Bengal environment and its fisheries, established Regional Coordination Units. These Units aimed to coordinate and drive national planning and management actions in-line with existing relevant organisations at all levels (BOBLME, 2015a). In this case, the establishment of designated bodies helped to coordinate existing institutional and national capacity towards a more regional approach (**Targets 16.7 and 17.17**).

In South-East Asia, six countries and a number of regionally operating NGOs and organisations established **the Coral Triangle Initiative** - a voluntary partnership to develop a regional approach to marine conservation and sustainable resource use in the area (**Targets 12.2, 12.a and 17.17**) (CTI-CFF, 2009b). The Coral Triangle Initiative supports the set-up of a Marine Protected Area System, coordinated regionally by its Members and implemented nationally in the six countries (CTI-CFF MPA TWG, 2013). While this promotes a regionally coherent approach and collaboration between the different partners, the voluntary partnership also faces challenges when tensions arise between country governments.

The **PERSGA Regional Master Plan for the Red Sea and Gulf of Aden Regional Marine Protected Area Network** demonstrates cooperation between Member States of the Regional Organisation for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA): Djibouti, Egypt, Jordan, Saudi Arabia, Somalia, Sudan, and Yemen. The Master Plan emphasises the role of coordinating activities and sharing of knowledge and experience in strengthening regional and national capacity for sustainable resource management (**Targets 12.a, 17.9 and 17.17**). Thus coordination between National Marine Protected Areas and associated management measures will support efforts to achieve regional goals (PERSGA/GEF, 2002). The Plan notes the establishment of an institutional framework for regional cooperation, comprising: a Regional Coordinating Committee; a Regional Activity Centre for Marine Protected Areas; and/or Marine Protected Area Focal Points in each country.

Under the **EU Marine Strategy Framework Directive** (MSFD) (2008/56/EC), Good Environmental Status is to be determined for marine (sub) regions and should be achieved in cooperation with neighbouring Member States. In the **Black Sea, Romania and Bulgaria** are collaborating on the implementation of a **transnational Marine Protected Area Network** as part of their MSFD implementation (Barova, 2015). Collaborative efforts of the two countries are supported by the existing regional coordinating bodies, including the Black Sea Commission and Permanent Secretariat (under the Bucharest Convention on the Protection of the Black Sea Against Pollution), and the Joint Romanian-Bulgarian Commission for the cooperation on water management. Moreover, Romania and Bulgaria received assistance through a European Commission-funded project that facilitated coordination of approaches, exchange of experiences, agreement on definitions of Good Environmental Status and harmonisation of measures to achieve MSFD objectives (Rommens *et al.*, 2015).

### 3.1.2 *National planning is supported by sub-national cooperation*

Area-based management at national or local levels can be challenging if multiple regions, districts or jurisdictions are involved in the planning or implementation process. As such, transboundary cooperation and communication between sub-national units is often required to support effective management. At a sub-national scale, area-based management approaches that coordinate activities and facilitate the sharing of knowledge across administrative boundaries, can support the effective delivery of coherent national policies and contribute to capacity building for sustainable resource management and conservation (**Targets 12.2 and 17.9**). Planning and management processes in smaller sub-national administrations can also be scaled-up to the national level, allowing local management variability to be captured.

#### **Sub-national Marine Spatial Planning to scale up to a nationally coherent plan**

In **Belize, Coastal and Marine Spatial Planning** took place in nine coastal planning regions. This enabled the development of a comprehensive, integrated and coherent national strategy while allowing for regional differences and interests to be considered.

In **Australia, Marine Bioregional Planning** was initiated in 2006. In 2012, the process delivered four Marine Bioregional Plans (South-West, North-West, North and Temperate East marine regions) and forty new Commonwealth Marine Reserves (renamed as Australian Marine Parks). Combined with existing marine parks, these Reserves contributed to a nationally representative system covering approximately 36% of Australia's exclusive economic zone. The plans are underpinned by an ecosystem approach, which requires government decision-makers to consider issues across jurisdictional, sectoral and disciplinary boundaries to ensure coordinated management. Thus, each marine bioregional plan provides decision-makers with valuable information on: the marine environment and conservation values (protected species, protected places and key ecological features) of the region; biodiversity objectives; regional priorities; and outlines strategies and actions to achieve these. Strategies within the plans include participation in various international management efforts, for example for marine migratory mammals.

### 3.1.3 *Scale in terms of size, ambition and cost*

The scale of an area-based management approach will influence the focus of its management objectives and its ability to delivery upon these objectives. The larger the scale, the more ambitious an approach, in terms of the number of actors involved, the issues to be addressed and the financial and human capacity required for successful implementation.

The implementation of area-based management approaches on a large-scale is often subject to inter-jurisdictional complexities, including those between countries, governments (national and provincial) and local communities. For example, approaches applied on a regional scale will involve multiple countries, each with their own priorities, socio-economic and environmental conditions, and financial and human capacities. Regardless, large-scale approaches can reflect regional ambitions and efforts to affect positive change within a broad geographical area— provided the application of the approach is proportionate to the scale of challenges it is aiming to address. Mechanisms to overcome inter-jurisdictional complexities can include: clarification of jurisdictional boundaries and responsibilities; and the creation of a coordination mechanism to enable communication between relevant competent authorities or institutions.

Whilst large-scale approaches with wider remits, including multi-sector and transboundary approaches, can be beneficial, trade-offs may be required in terms of the time and financial resources required to

implement a larger process. However, it is important to recognise that these approaches have the potential to guide actions at the national level by encouraging the development of

### Clarifying organisational responsibilities

To improve cooperation and coordination between competent regional organisations in the **North-East Atlantic** (NEAFC and the OSPAR Commission), a bilateral *collective arrangement* has been established (NEAFC & OSPAR, 2015). The arrangement was established via: information exchange between the two organisations, a process to understand the intentions and practices of each organisation, and the formulation of a Memorandum of Understanding (MoU). The MoU clarified organisational legal competencies and provided a basis for mutual understanding. Participation in the arrangement occurs via organisation secretariat participation in relevant committees of the other organisation and regular information sharing.

In **Australia, Marine Bioregional Plans** were developed under section 176 of the *Environment Protection and Biodiversity Conservation Act (1999)* (EPBC Act). The plans aim to improve decision-making, particularly in relation to the protection of marine biodiversity and sustainable use of oceanic resources, by supporting a landscape-scale ecosystem approach to address the drivers of biodiversity loss rather than their symptoms. The Minister responsible for the environment must give due regard to Bioregional Plans when making any decision under the Act to which the plans may be relevant.

complementary national plans. A barrier to the inclusion of large areas or multiple jurisdictions within the remit of a management approach is the variety of stakeholders that should be involved in the process. For example, approaches that include both terrestrial and marine areas will involve a greater array of governmental departments, ultimately magnifying the scale and complexity of the process. In addition, jurisdiction over the terrestrial and marine spatial areas and associated policy application is often the responsibility of separate institutions. In support of this, the divide between terrestrial and marine planning in the European ICZM

approach, has been found to hinder its implementation (UNEP/MAP/PAP, 2011). The issue of jurisdictional division between terrestrial and marine realms is not limited to Europe, but is found in the majority of countries. It is, however, possible to overcome jurisdictional challenges associated with multi-sectoral, transboundary approaches, as demonstrated by the example below.

As part of the **Bay of Bengal Large Marine Ecosystem (BOBLME) Project**, eight countries collectively undertook a 'Transboundary Diagnostic Analysis' to identify priority regional issues. A regional Strategic Action Programme to address shared issues was developed (BOBLME, 2015a), demonstrating member countries' shared vision and commitment to work collaboratively. In a recent evaluation, some issues identified are not considered to be transboundary, rather they are common to each country and thus require targeted national approaches (FAO, 2016). Regardless, the undertaking of a transboundary diagnostic analysis has fostered a collaborative environment in which there is increased awareness— and communication— of issues and sharing of good practices.

As part of the **Integrated Coastal Zone Management process in Belize**, considerable horizontal integration between different government departments was required in order to facilitate effective ICZM implementation. The central planning agency – the Coastal Zone Management Authority and Institute (CZMAI) – made efforts to ensure that management plan development considered the needs and objectives of different government departments, including four “major agencies” with responsibilities for monitoring and research of the marine environment. Wider stakeholder participation was facilitated through a Management Plan Advisory Council, comprising government agencies and NGOs, and multi-stakeholder Coastal Advisory Committees comprising representatives from the public and private sectors, educational institutions, NGOs and civil society (Verutes *et al.*, 2017). Additionally, nine coastal planning regions were defined to provide a scientific basis to support community-driven planning meant that the plan could be both national and locally recognisable (Verutes *et al.*, 2017). A prominent lesson highlighted by this process is that “change takes time”, with the six year plan development process by CZMAI building upon efforts dating back to the 1990's (Verutes *et al.*, 2017). Despite, or

because of, the time taken, a comprehensive plan is now in place and its implementation will provide fascinating lessons over the years to come.

#### 3.1.4 *Legal scale*

Spatial management measures can be implemented to meet various obligations under a piece of legislation. These measures may also align with a range of other legislative provisions and other management measures within a particular area. For example, actions undertaken to deliver Good Environmental Status required under the **Marine Strategy Framework Directive** have included the production of a dedicated programme of measures. Within Romania and Bulgaria, the creation of a **Black Sea Marine Protected Area Network** was identified as one measure to work towards Good Environmental Status. This measure also contributes to the delivery of five other regional commitments and policies: the Habitats Directive, Birds Directive, Common Fisheries Policy, Environmental Impact Assessment Directive and the Water Framework Directive, thus demonstrating cross-cutting contributions to both national and regional legislation.

#### **Regional legislation supports area-based management approach cooperation**

In the **Mediterranean**, Contracting Parties to the Barcelona Convention have committed to progressively applying an Ecosystem Approach to the management of human activities in the marine realm (Decision IG.17/6), with the ultimate goal of achieving 'Good Environmental Status' under the **MSFD (Target 14.1)**. Correspondingly, the Mediterranean **ICZM Protocol** requires Contracting Parties to strengthen regional cooperation for implementation of the ecosystem approach (European Council, 2009). The Protocol provides mechanisms to address combined pressures and cumulative impacts within the Mediterranean environment, including Strategic Environmental Assessments (SEA) and Environmental Impact Assessments (EIA) and promotes consensus amongst coastal resource users (**Target 14.2**). Moreover, the UN Environment Mediterranean Action Plan (UNEP-MAP) aims to mutually collaborate towards this goal. However, it should be recognised that there are important differences in capacity for management measure implementation between the MSFD and UNEP-MAP, often driven by institutional visions or jurisdictional mandates (S. Petit, 2018).

#### **Key finding:**

The spatial scale at which an area-based management approach operates is determined by the scale of the issue to be addressed and the underpinning policy through which it has been identified. The scale of management approaches will influence the scope of the objectives for implementation, and will determine the number of actors involved.

## 3.2 Legal basis

The legal basis underpinning an area based management approach, and any legal frameworks put in place to facilitate approach implementation, can vary significantly, with a spectrum of different legal options noted across the twenty-five case studies in this analysis. Existing legislation can provide a legal foundation for the planning stage of an area-based management approach, and in some instances, may also include provisions relating to the approach implementation. Similarly, the creation of new, dedicated legislation can support the development and implementation of an approach in a particular area. Contrastingly, the development and implementation of an area-based management approach can be an entirely voluntary process, with no legal foundation and established solely as an informal agreement based on the goodwill of all parties.

### 3.2.1 Legal Implementation

A strong legal foundation can provide an organisation or individual countries with a mandate— and create obligations— to plan and implement area-based management approaches to deliver certain policies.

#### Implementation of legally binding management measures

In the **Madagascar Locally Managed Marine Area Network (MIHARI)**, planning and development of Network sites has been led by local communities. Specifically, in the **Velondriake Locally Managed Marine Area (LMMA)**, management measures are implemented under *Dina* - traditional customary laws (Mayol, 2013). *Dina* are created and enforced by local communities, but can be recognised and accepted into the national legal system to aid enforcement (Mayol, 2013). The declaration of no-take zones within LMMAs can also aid effective implementation, setting out penalties for violations. For example, more traditional penalties, such as social repercussions or public shame, or legalistic penalties, such as fines administered under the community legal system (Govan et al., 2008).

In **Lyme Bay Fisheries and Conservation Reserve (UK)**, infringements upon voluntary gear restrictions have resulted in the establishment of legally binding measures, and illegal fishing in fisheries closure areas has subsequently been addressed through prosecutions under the Habitats Directive (Rees *et al.*, 2016). The legal framework incentivises compliance with management measures, as non-compliance can be met with prosecution. However, challenges still exist, namely that recreational fisheries do not have to abide by the same management measures as the commercial sector. This discrepancy in management measures between fishing sectors has resulted in friction between members of the fishing community (Singer, 2016).

### 3.2.2 *Non-binding implementation*

The use of non-binding agreements can enable planning and implementation of area-based management approaches as they can encourage collaboration and commitment. Non-binding agreements do not require legal commitments from participating entities and as such, can encourage goodwill commitments on the basis that inability to uphold a commitment will not be met with punitive action. Voluntary partnerships can be formed to develop measures to address issues and through a collaborative approach, partners can agree upon voluntary or goodwill commitments for action depending upon their capacity. Alternatively, commitments can be more firmly established through different types of non-binding agreements such as a Memorandum of Understanding (MoU). Voluntary commitments can evolve over time into binding agreements if those involved see the value of this. The box below illustrates both the use of non-binding agreements and the evolution of voluntary partnerships.

#### Use of non-legally binding agreements to facilitate planning

The Canada's Oceans Act (1997) sets a precedent for integrated management planning for conservation and sustainable development and provides a legislative basis for the **Pacific North Coast Integrated Management Area (PNCIMA) planning process**. However, overlapping jurisdictions and mandates belonging to Federal, Provincial and First Nations Governments has required collaboration mechanisms to achieve mutually desired goals (PNCIMA Initiative, 2017a). To overcome jurisdictional complexities and promote collaborative governance, a non-binding trilateral agreement was established between the Government of Canada (2008), First Nations (2008) and the Province of British Columbia (2010)— **the PNCIMA Collaborative Oceans Governance Memorandum of Understanding (MoU)** (PNCIMA Initiative, 2017a). The non-binding nature of the MoU was found to have aid the development of a strategic plan via the promotion of information sharing and integration across all levels of government, the identification of policy gaps and the strengthening of relationships between the different levels of government (PNCIMA Initiative, 2017a). The PNCIMA management plan specifies that implementation will be achieved through “work plans”, which will clarify accountabilities of partners and identify specific actions and time lines for completion (PNCIMA Initiative, 2017a). As such, it has been identified that the success of plan implementation will depend on continued engagement and involvement of governments and diverse stakeholders.

In the case of the **Coral Triangle Marine Protected Area System**, the establishment of the Coral Triangle Initiative for Food Security, Fisheries and Coral Reefs (CTI-CFF) was a result of a voluntary partnership between the six member countries, consolidated through the creation of a non-binding Regional Plan of Action (2009). The Plan of Action sets out a specific goal pertaining to the establishment and effective management of Marine

Protected Areas and provides the basis for the Coral Triangle Marine Protected Area System Framework and Action Plan (CTMPAS) (CTI-CFF, 2009b). The Regional Plan of Action, and the subsequent CTMPAS are considered to be “soft law” and are therefore not legally binding upon the six Coral Triangle countries (Thomas *et al.*, 2017). As such, these plans rely upon voluntary commitments and member country goodwill to contribute towards an agreed regional approach to sustainable marine resource use.

### Key finding:

Both legal and non-binding frameworks can support the implementation of area-based management approaches. Legal frameworks can support compliance with measures and provide increased resource management power. Voluntary agreements can provide a foundation on which to build trust and buy-in. Processes started under non-binding agreements, can evolve to include legal aspects if those involved in the process feel it is necessary. Customary law can be cemented formally into national legislation through review and engagement in an area-based planning process where government support exists.

## 3.3 Institutional framework

When undertaking area-based planning, one institution will often have primary responsibility to lead the planning process. A variety of institutional structures can lead area-based planning processes, including governments, organisations with governmental support, independent non-governmental organisations (NGOs), local communities, or a combination of these. A number of institutional attributes have been found to support the planning process. For example, leadership, technical skills, a legal mandate and collaboration mechanisms. These will be discussed in more detail below.

### 3.3.1 *Institutional legal mandate*

In various case studies included in this analysis, an enabler of area-based management was the establishment of an institutional body with a specific legal mandate to undertake the planning process and/or to coordinate the implementation of area-based management approaches for a given jurisdiction.

#### **Institutional legal mandate supporting area-based management**

As part of **Coastal and Marine Spatial Planning in Belize**, the Coastal Zone Management Authority and Institute (CZMAI) was established. It was recognised that a legal mandate for the CZMAI would support the process to create a management plan for the coastal zone. Consequently, the CZMAI was given a legal mandate under the country’s Coastal Zone Management Act (Revised 2003) to develop an integrated management plan

(Government of Belize, 2003). An Advisory Council made up of NGO and Government Agencies provided a coordinating mechanism for managing activities within national jurisdiction. This case study provides an example of where a legally mandated planning organisation supports the production of a management plan.

Originally established as a voluntary, multilateral partnership, the **Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF)** was legally formalised in 2011 as a regional body by the six member countries through the 'Secretariat Agreement' (CTI-CFF, 2016). The CTI-CFF regional secretariat is mandated to coordinate actions within the region and facilitate communication between member countries. In order to coordinate and guide national actions towards a regional Marine Protected Area Network, the CTI-CFF has established the Marine Protected Area Technical Working Group. The working group has developed the Coral Triangle Marine Protected Area System (CTMPAS) Framework and Action Plan, and provides advice on potential opportunities and measures to address current and emerging issues in the region (CTI-CFF, 2009b).

Institutional arrangements may change or be required to evolve in light of various economic or social influences. For example, restructuring of national administrations, political turmoil, capacity limitations or changes in national priorities. Such changes could lead to a transfer of legal mandates for area-based planning and management, which may result in uncertainty regarding the institutional responsibilities of different government agencies. Such uncertainty could therefore hinder the effectiveness of area-based management approaches until responsibilities can be clarified.

An example of institutional change comes from the efforts to implement area-based management under the **EU Marine Strategy Framework Directive (MSFD) in Romania**. In this case, the implementation of a regional Marine Protected Area Network has been hindered by repeated changes in government structure, redistribution of activities and changes in ministerial responsibilities (Boicenco and Milkova, 2016). These institutional changes have proven to be a barrier to area-based planning due to uncertainty regarding responsibilities, capacity limitations and a loss of expertise and awareness of existing efforts. In other examples, an institutional mandate may be absent.

#### **Challenges faced when legal mandate is absent or unpredictable**

In the case of **Nha Trang Bay Marine Protected Area (MPA) (Viet Nam)**, formerly named the **Hon Mun MPA**, a designated Nha Trang Bay MPA Authority – a non-administrative agency with a specific mandate for MPA implementation and management – was established to facilitate and coordinate activities. The Authority had a mandate to develop management regulations, contribute to functional zoning of the MPA, and conduct routine monitoring. However, coordination activities were heavily reliant on donor funding, which, upon ending,

consequently reduced the involvement of other agencies and hindered enforcement of management measures (T. D. Khuu, 2018). In 2013, following decentralisation, the Nha Trang City People's Committee established a joint working group to monitor the MPA and address any violations independently from the Nha Trang Bay MPA Authority (Walton *et al.*, 2015). However, the working group was not allocated sufficient government financial resources and, as previously, its success was limited (T. D. Khuu, 2018).

### 3.3.2 *Inter-Institutional Collaboration*

A lack of coordination and cooperation between different levels of government and/or different agencies in existing institutional arrangements can hinder the development and implementation of area-based management approaches. Therefore, if an institution exists—or is established—specifically for the purpose of implementing an area-based management approach, the creation of a mechanism to facilitate cooperation with other relevant agencies at all levels (regional, national, local) may enable effective planning.

#### **NGO Leadership of ICZM Process provided Governmental Mandate via Steering Committee**

In Patagonia, **Coastal Zone Planning** was led by a local NGO with a governmental mandate which acted as an independent planning institution (Thomas *et al.*, 2016). In order to provide the government mandate for the process, a Steering Committee was set up for the project, comprising government representatives from each of the five project provinces, representatives from each of the relevant authorities (e.g. National Parks Administration, Ministry of Foreign Affairs, Secretariat of Environment) and project representatives (UNDP; Fundación Patagonia Natural). Over time the Steering Committee became a very valuable problem solving forum for the project team. The presence of the Steering Committee and its governmental representatives demonstrated the government's support of the NGO and thereby legitimising their efforts.

#### **Key finding:**

Organisational leadership and coordination of area-based management approaches requires a leadership mandate, and dedicated financial, human and technical capacity. An organisational institution can be established or identified from existing institutions which have been given area-based management responsibilities.

### 3.4 Funding

Funding plays an important role in many aspects of management plan development and effective implementation of area-based management approaches. Funding is necessary for many activities, including research and data gathering, stakeholder engagement, monitoring and review processes, enforcement, as well as staffing and resources for implementing institutions. Consequently, the availability of funding can enable or hinder the ability of area-based management approaches to deliver upon associated marine and coastal policies.

#### Funding sources – challenges from administration changes and government variability

The main funding source for the **Florida Keys National Marine Sanctuary** is the National Oceanic and Atmospheric Administration (NOAA), which is responsible for the administration of the Sanctuary. This provides the Sanctuary with a comparatively stable and secure source of funding. However, as government funding is influenced by political priorities, changes in government can lead to reductions in the resources available for the Sanctuary.

Economic constraints and changing development priorities have resulted in limited government funding for the establishment and management of Marine Protected Areas under the **Red Sea and Gulf of Aden Regional Marine Protected Area Network** (PERSGA/GEF, 2002). To counteract this, a Regional Master Plan for the Network sets out sustainable financing strategies, highlighting tourism, as a potential source of revenue (PERSGA/GEF, 2002).

#### 3.4.1 Sources of funding: opportunities and challenges

Area-based management approaches can be funded via a variety of sources, including government funding, grant funding, NGO-funded projects and development bank funding. The ease with which funding can be obtained can be associated with specific opportunities and challenges. Government funding, either through direct financial support, or through dedicated budgets for government bodies responsible for implementing area-based management, can provide comparatively stable or secure financial resources.

#### 3.4.2 Secure funding can enable area-based management processes

On a regional scale, institutions such as the European Commission can support their Member States in the implementation of area-based management approaches through directly funded projects. For example, a European Commission-funded project assisted Romania and Bulgaria in the collaborative establishment of a **Black Sea Marine Protected Area Network**. This work was undertaken in accordance with the regional strategy for implementing the Marine Strategy Framework Directive (Rommens *et al.*, 2015).

In Argentina, Global Environment Facility (GEF) funding supported a series of projects associated with the **Patagonian Coastal Zone Management Plan**. The first project started in 1992 to undertake the creation of a management plan (GEF, 2017c). A subsequent project supported the implementation of the management plan with over \$5 million in funding (GEF, 2017a). The third project aimed to support the inter-jurisdictional designation of a system of marine protected areas (GEF, 2017b).

Funding and in-kind contributions for area-based management approaches are also available from other sources, such as Non-Governmental Organisations, and other external donors, including philanthropic foundations. Non-Governmental Organisations and external donors often play an important role in the development and early implementation stages of area-based management approaches. This role often includes providing financial capacity, in-kind contributions in the form of training or equipment and on-the ground assistance.

**Non-Governmental Organisation funding of area-based management plans**

In the **Kubulau, Fiji**, the Wildlife Conservation Society and other NGOs provide 'in-kind' support for the Marine Protected Area Network, implemented as part of **the Ridge to Reef approach**. Support comprised the funding and conducting of research by the University of the South Pacific to feed directly into the management plan and inform the monitoring and evaluation of the Marine Protected Areas (WCS, 2012).

During the development process for the **Raja Ampat Marine Protected Area Network**, the Raja Ampat Regency Government, the Nature Conservancy, Conservation International and the University of Queensland formed a partnership (TNC, 2012). Project partners provided in-kind contributions in the form of mapping expertise and technical capacity in the use of decision-support tools such as MARXAN to assist the development of zoning plans for each of the Marine Protected Areas within the Network (TNC, 2012). In addition, partners facilitated a community mapping process to integrate local communities into the Marine Protected Area designation process (TNC, 2012).

In **Madagascar**, initial funding for the establishment of various **Locally Managed Marine Areas within the MIHARI Network** was provided by the NGO - Blue Ventures. The charity continues to provide financial and technical support, including training in activities such as data collection and stock assessments, to support local communities in managing their marine areas (Rocliffe and Peabody, 2013). Recognising the need to ensure LMMA management is financially sustainable in the long term, Blue Ventures is also supporting local communities to become more financially independent through the identification and development of alternative income sources. These include marine ecotourism

programmes, eco-certifications for sustainable fisheries, and payment for ecosystem services, such as mangrove carbon sequestration under the REDD+ initiative (Blue Ventures, 2017). More information on eco-certification can be found in section 3.4.2.

In several case studies, inconsistent and insufficient funding was identified as a barrier to the effective implementation of area-based management approaches and ultimately the delivery of associated policies. Further examples to illustrate financial challenges faced by area-based management approaches are illustrated below.

### Challenges of financing conservation funds

In the case of **Coastal and Marine Spatial Planning in Belize**, funding cuts to the Coastal Zone Management Authority and Institute (CZMAI) hindered the planning process to develop an Integrated Coastal Zone Management plan for the area. Without adequate funding, the CZMAI, could only continue plan development on an ad-hoc basis, resulting in a prolonged and fragmented planning process. When funding was secured, the CZMAI was reinstated, and it was then possible to finalise the plan, which has now been published.

Successful implementation of all elements of the **Pacific North Coast Integrated Management Area Plan (PNCIMA)** in Canada will rely heavily on sufficient federal, provincial, and First Nation capacity. Federal funding was limited in recent years; however, new resources under Canada's Ocean Protection Plan and Marine Conservation Targets initiative will support delivery of some PNCIMA priorities, such as Marine Protected Area Network planning. Truly collaborative and participatory planning processes are resource intensive. A lack of funding may also present a barrier to other elements of area-based management, such as effective monitoring and enforcement of management measures and regulations. For example in Romania the establishment of the regional **Black Sea Marine Protected Area network**, is hampered by low levels of government funding for routine monitoring.

### Ongoing funding can be challenging to obtain and maintain

In Argentina, a dedicated fund was established to support the implementation of the **Patagonian Coastal Zone Management Plan** across different jurisdictions. However, as the money to support this fund has not yet been made available, the Argentinian case study illustrates the need to consider the financing for such a fund if it is to provide sustained financial support for area-based management in the region.

### 3.4.3 Sustained and self-generated funding

Secure, sustained funding enables continued area-based management and enforcement efforts beyond the initial implementation. Funding supports activities such as monitoring

programmes, education programmes and on-going stakeholder engagement. Different approaches to achieve long-term financial security and independence from external funding have been developed and adopted in a number of the case studies in this analysis. For example, income from tourism and user-fee systems has been identified as an option for sustained, independent financing of Marine Protected Areas in many locations around the world. Examples from the case studies demonstrate where funding sources have been established or developed to support the implementation of area-based management approaches to contribute towards the delivery of relevant policies and related SDGs.

Examples of different funding approaches	
<p><b>Tourism:</b> As part of the <b>Kubulau District Ridge to Reef Project (Fiji)</b>, a network of MPAs, including marine reserves, have been implemented. For example, the <b>Namena Marine Reserve</b> which implements commercial fishing restrictions and designated tourist zones to help protect marine features that are of value (such as coral reefs and fish stocks) to the local communities and the tourism industry, including international dive tourism (Jupiter &amp; Egli, 2011). The Kubulau Resource Management Committee, in collaboration with the Coral Reef Alliance, have developed a business plan for the Namena Marine Reserve which aims to support area-based management independent of external funding (WCS, 2012). For example, the application of a user fee system for tourists who wanted to dive, snorkel or swim in the protected area (Jupiter &amp; Williams, n.d.). User fee revenue has been fed back into the community via a scholarship fund to assist the education of local children, and a management fund to support the Kubulau Resource Management Committee (Jupiter &amp; Williams, n.d.).</p>	<p><b>Alternative Income Generation:</b> In the <b>Nha Trang Bay Marine Protected Area (MPA)</b>, the development of the tourism industry and implementation of MPA management measures has resulted in the resettling of many local residents. In response, alternative income generation activities, such as aquaculture and alternative fishing capacities outside the MPA, were established in an attempt to support community members whose livelihoods have been disrupted (GEF, 2006). In addition, dedicated vessels and staff were identified to collect ‘service charges’ from swimmers and divers in the MPA. However, non-transparent collection methods and a lack of financial income from tourism developers have undermined efforts to compensate locals for the loss of traditional land and fishing grounds. This example demonstrates that in order to be effective, alternative income generation strategies need to be considered during the planning stages of an approach and that local communities should be involved in the planning and establishment of such activities to ensure that their needs are sufficiently met.</p>

In **Lyme Bay Reserve (UK)**, a “Reserve Seafood” brand for the fish caught in the reserve using sustainable methods was established with the aim of increasing fish prices. To prolong the freshness of catches, and thus potentially further increase the price and reduce waste, investments were made to improvement to freezing facilities. In practice, it can often be difficult to ensure fishermen receive additional revenue via such approaches due to the influence of the buyers (such as supermarkets), which often means that value added is extracted further up the value chain. Such complexities should be considered during the planning of a management approach and could be recognised as an issue to monitor or review as part of a management plan.

A variety of other self-generated funding mechanisms also exist, which were not identified in the twenty-five case studies, however have been implemented in various other locations around the world. Examples include:

- **Licensing fees** implemented for marine users, for example seaweed farmers in the Philippines (A. White, 2018);
- **Payments for ecosystem services**, such as carbon sequestration by mangrove and seagrass ecosystems (‘blue carbon’), which is being tested in Barbados;
- **Debt-for-nature swaps** to support area-based management. For example, marine spatial planning in the Seychelles Exclusive Economic Zone, focusing on sustainable development climate change adaptation and biodiversity conservation (TNC, 2018);
- **Establishment of Trust Funds** to provide dedicated funds in support of area-based management approaches and thus reduce competition between proximate designations or proposals. For example, MPA establishment in the Mediterranean (S. Petit, 2018).

### Key findings:

Stable funding underpins the long-term sustainability of an area-based management approach. Funding can come from a number of sources including: tourism fees and increased value of products through certification and sustainable yield mechanisms.

### 3.5 Multi-sector stakeholder engagement

The term ‘stakeholder’ covers a range of different groups and individuals that might be affected by, or have an interest in a management decision, as well as those with responsibilities for implementing the decision. Stakeholders can include government agencies, Non-Governmental Organisations (NGOs), businesses and industry

representatives, user and interest groups, as well as local communities, individual citizens and civil society. The identification of relevant stakeholders to participate in an area-based management approach is dependent upon the context under which the approach is being implemented. The type of engagement undertaken— and the mechanisms used— is the planning and implemented processes is also context-specific. Stakeholder engagement is a key element of area-based management and as such, many legal frameworks, strategies or action plans include provisions or requirements for stakeholder engagement in both planning and management processes.

### Stakeholder engagement is a key principle of many area-based management approaches

**The Mediterranean ICZM** Protocol identifies stakeholder engagement as a key principle of Integrated Coastal Zone Management and requires appropriate involvement of stakeholders in the formulation and implementation of coastal and marine strategies, plans, programmes and projects (Protocol on Integrated Coastal Zone Management in the Mediterranean, 2009). For example, stakeholder engagement for Integrated Coastal Zone Management in the Mediterranean occurs via the identification of national focal points and the establishment of multi-stakeholder projects that support the implementation of the ICZM Protocol in the region, such as the PEGASO project (PEGASO Project, n.d.).

In order to facilitate effective and inclusive stakeholder engagement, the **Bay of Bengal Large Marine Ecosystem (BOBLME) Project** established national and regional coordinating mechanisms to ensure stakeholder participation in both the development and implementation of the project (FAO & GEF, n.d.). Stakeholders were identified at 3 levels (Regional, National and Local) and were closely involved in project development through participation in national consultations and workshops, meetings of national task forces, regional workshops and technical meetings, and meetings of the project Steering Committee (FAO & GEF, n.d.). Stakeholder participation was also an important component in the development of the Transboundary Diagnostic Analysis to identify shared issues and their causes and drivers, and was ensured through a series of regional workshops and national consultations (BOBLME, 2012). In addition, the **Bay of Bengal Large Marine Ecosystem** Strategic Action Programme further emphasises stakeholder engagement by setting out stakeholder engagement as a key principle for the management of the LME (BOBLME, 2015b).

### 3.5.1 *How successful stakeholder engagement can support area-based management planning*

Engagement processes can help stakeholders understand the rationale behind management measures such as area closures, regulations or other management decisions.

#### **Argentinian ICZM process for the Patagonian Coastal Zone Management Plan.**

The engagement of government bodies as well as the public sector and academia in the first GEF project to develop and implement a management plan for the Patagonian Coast enabled successful implementation of the plan. From the case study, it was identified that initially, working with multiple economic sectors was challenging and required innovative mechanisms through which buy-in from the private sector could be secured. One such mechanism was to highlight each of the benefits associated with the project and identify how they could benefit the private sector specifically, for example the benefits associated with developing high quality tourist destinations linked to protected areas. Collaboration over time is also an important consideration and the trust built between the project and stakeholders throughout the project lifetime helped to sustain engagement. The second GEF project that supported the planning process was also characterised by the strong involvement of the government who took ownership of the project.

Stakeholder engagement is relevant, to a variable extent, for all area-based management approaches that involve multiple sectors and user groups, and local communities. Approaches that often undertake wide stakeholder engagement include Integrated Coastal Zone Management, Marine Spatial Planning, Marine Protected Areas, and Marine Protected Area Networks. Community-based approaches, such as Locally Managed Marine Areas, Ridge to Reef, or community managed Marine Protected Areas, rely almost entirely on the involvement and support of local community stakeholders.

#### **Community involvement in area-based management planning processes**

In the **Raja Ampat MPA Network**, Indonesia, local communities are heavily dependent on the marine environment for subsistence and therefore community involvement in the development and implementation of a Marine Protected Area Network was particularly important to ensure a balance between conservation and sustainable fisheries management objectives. The NGO, The Nature Conservancy (TNC) facilitated a community participatory mapping process through which local communities identified their local fishing grounds and preferred areas for conservation zones in each Marine Protected Area (TNC, 2012). In addition, an expert mapping process which included local government agency representatives and Marine Protected Area practitioners was also undertaken. Stakeholder participation in the development of a zoning plan for the Marine Protected Area Network allowed for the integration of local knowledge, ultimately helping to foster

local ownership of management measures and encouraging compliance with Marine Protected Area regulations (Agostini *et al.*, 2012). For example, community patrols of protected areas to enforce shark and ray sanctuaries have been effective in moving away from shark finning and towards ecologically sustainable dive tourism as a source of income for the local community. Thus, stakeholder engagement is an enabler of better informed area-based management approaches, effective implementation and improved delivery of marine and coastal policies.

In multi-sector approaches, stakeholder engagement enables the integration of different interests into one process. As such, it can help resolve conflicts between different groups and find consensus on management decisions.

### Mechanisms of stakeholder engagement implementation

*Steering committee:* In the **Pacific North Coast Integrated Management Area (PNCIMA)** in Canada, stakeholder engagement was critical to the development of an integrated management plan. Engagement was facilitated through the establishment of a specialised, multi-sector advisory body with the explicit purpose of multi-sector engagement and communicating the results of that engagement – the Integrated Oceans Advisory (IOAC). The IOAC provided the project Steering Committee with advice and recommendations on the planning process, its outputs, and the implementation of the integrated management plan. Recommendations were based on input from multiple sectors and stakeholders, including *inter alia* representatives from industry, recreational groups, and environmental non-governmental organisations. The existence of the IOAC also provided an opportunity to resolve differences between sectors or stakeholders through consultations, thus helping to ensure buy-in or support from stakeholders.

*Co-management:* In **Lyme Bay Reserve**, the Fisheries and Conservation Reserve is co-managed with local stakeholders. Stakeholder engagement is essential in order to facilitate the delivery of fisheries and conservation objectives, by encouraging compliance with management measures, and in particular with the voluntary code of conduct that is in place (Marine Planning Consultants Ltd., 2014). For example, engagement of fishermen and conservation organisations in the management of the Reserve has helped to overcome long-standing conflicts between these two sectors.

*Advisory council and working groups:* Involvement of the local community and stakeholders plays a central role in the planning processes, regulatory review and implementation of management measures in the **Florida Keys National Marine Sanctuary**. The Florida Keys Sanctuary Advisory Council, for example, played a central role in the review process of the zoning plan and regulations for the **Sanctuary**, supporting the identification of locally

relevant topics and providing local expertise and knowledge input on potential changes to zoning or regulations. The Advisory Council meets six times a year and includes representatives from boating, conservation and environment, diving, education and outreach, South Florida ecosystem restoration, fishing (commercial and recreational), elected county government, submerged cultural resources, research and monitoring, tourism and the community at large (FKNMS, 2007) . Within the Advisory Council, working groups were created to address specific topics, gather information from community experts, user groups and scientists and develop recommendations.

*Advisory committees:* **In Belize**, Coastal Advisory Committees (CAC) played a central role in the Coastal and Marine Spatial Planning process. Through these Committees, a wide range of stakeholders were involved in the review of management scenarios and development of the zoning plan (Verutes *et al.*, 2017). Regional Coastal Advisory Committees made up of public and private sector, government and NGOs provided a mechanism for engagement and discussion (Verutes *et al.*, 2017). There were nine CAC formed, one for each of the coastal planning regions. There are significant variations in the major coastal resource users in each of the nine regions and these were represented by the dedicated Committee for each.

Stakeholder engagement can also be relevant for single sector area-based management approaches, such as **MARPOL Emission Control Areas and Special Areas**. Consultations with relevant industries, including international and domestic shipping, the cruise sector, ports and ports facilities, as well as other interested parties can improve the effectiveness of management measures, secure industry buy-in and encourage compliance with emissions limits and other protective measures that are in place in these areas.

### 3.5.2 *Participatory decision making*

Stakeholder engagement supports participatory decision-making in area-based management processes, contributing to the delivery of Sustainable Development Goal **Target 16.7**.

#### **Use of stakeholder knowledge in the planning process**

In the planning process for the **Velondriake Locally Managed Marine Area Network, which is part of the Madagascar Locally Managed Marine Area Network (MIHARI)**, local stakeholders were involved in participatory resource mapping, identification of marine resource uses and pressures, as well as decisions about conservation objectives, closed areas and management measures (Cripps & Harris, 2009).

In **Belize**, the planning process was supported by a series of scenarios created using InVEST, supported by the Natural Capital Project (CZMAI, 2016). InVEST is a software tool which includes models to support the mapping and valuing of ecosystem services. Models

and scenarios, supported by this software tool, were used to help support decision-making and proved useful in designing regional development plans (CZMAI, 2016). Three possible future scenarios were provided, each with different levels of conservation and development. One scenario provided a 'conservation only' approach and, at the other end of the spectrum there was a 'development only' scenario, with a more 'balanced use' scenario in between (CZMAI, 2016). The Coastal Advisory Committees were engaged to support the scenario development so that they reflected stakeholders' perceptions of 'extreme options' and to help identify stakeholder priorities. Public meetings were also held and in some cases, engagement and communication of management needs was facilitated using maps.

### 3.5.3 Partnerships

Area-based management approaches often bring together multi-stakeholder groups that act in partnership to deliver marine and coastal management objectives, contributing specifically to the delivery of Sustainable Development Goal **Targets 17.7** and **17.16**. These partnerships encompass public, private and civil society institutions and bring together stakeholders from different sectors with an interest in, or expertise on, the specific area that is being managed. Partnerships enable the integration of different interests and knowledge into

planning processes or strategies and help ensure that area-based management approach design is based on best available information. Partnerships can also facilitate liaisons between management teams and local communities, ensuring that local citizens and stakeholders are informed and engaged in area-based management processes.

#### Partnerships contributing to decision-making

The community based Marine Protected Area Network which is part of Ridge to Reef management in **the Kubulau District, Fiji**, has built strong partnerships between the local community and external partners, government agencies with resource management responsibilities and enforcement authority, NGOs that provide funding, scientific research and capacity-building, and the private sector. An important partner is the dive operators, who promote protection and provide funding for the reserve management through a reserve user fee system.

In Indonesia, **the Raja Ampat** Regency Government formed strong partnerships with the Nature Conservancy, Conservation International and the University of Queensland which supported them in the zoning process for the Raja Ampat Marine Protected Area Network as well as with gathering data to inform effective management of the Marine Protected Areas (TNC, 2012).

The examples above illustrate the different ways in which the partnerships can support area-based planning. A summary of methods is provided below.

### Summary of stakeholder engagement methods

There are different mechanisms for stakeholder engagement in area-based management. One engagement mechanism that have been described above are the advisory councils, committees or consultative groups. Partnerships often arise out of stakeholder engagement methods. Other mechanisms include:

- *Formal consultations on plans and strategies*: carried out in the Bioregional Planning case study in Australia; in the planning process for the Black Sea MPA network in Romania and Bulgaria; or throughout the policy development and implementation of the North American Emission Control Area in Canada;
- *Workshops*: action planning workshops for the development of the Strategic Action Plan for the Bay of Bengal Large Marine Ecosystem Project;
- *Public meetings*: for example those held during the ICZM process for the Patagonian Coastal Zone in Argentina;
- *Outreach and education programmes*: the Wadden Sea PSSA case study outreach was undertaken to raise awareness of the risks and environmental impacts of shipping and the associated protective measures in the Wadden Sea area; and
- *Volunteering programmes*: used in the Florida Keys National Marine Sanctuary to provide opportunities for local citizens to get actively involved in the implementation of management measures or other Sanctuary activities.

### Key findings:

Engaging stakeholders increases participation, partnerships and compliance with area-based management measures. Mechanisms for engagement need to be designed according to the local context. A key factor is time to build trust between different stakeholder groups.

## 3.6 Data Collection & Monitoring

When considering area-based management approaches, the selection and designation of an area is often based upon evidence or data showing the existence of a particular feature, species, habitat or phenomenon. Data collection, to support indicators, can enable implementation and enforcement of an area-based management approach as it can provide an indication of how effective an approach is. For monitoring, a baseline is required in order to track progress.

### Requirements to collect data

In some instances, management plans may set out a requirement for data collection. For example, the **Mediterranean Integrated Coastal Zone Management Protocol** requires the collection of coastal zone data at a national level. In addition, the protocol requires member countries to agree upon both a process for data collection, and a data reference format. Coordination of these two factors facilitates a consistent approach throughout the region. The Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast (UNEP/MAP, 2017) provides a monitoring strategy to support the coordinated and consistent delivery of objectives set out by the Barcelona Convention and associated Protocols, including the Integrated Coastal Zone Management Protocol. The Monitoring Programme defines a list of common indicators for the state of the coastal and marine environment that are to be monitored by all Contracting Parties. These indicators require collection of a wide range of data, including species and habitat distribution, species population abundance, fishing effort and other fisheries related data, as well as pollution concentrations, nutrient levels and trends in the amount of marine litter.

Without a requirement for data collection, effective area-based management approach implementation can be hindered. Under the environmental management plan for the **Clarion-Clipperton Zone, Areas of Particular Environmental Interest (APEIs)** have been provisionally designated and are to undergo a review to assess their appropriateness (International Seabed Authority Legal & Technical Commission, 2012). However, the plan does not set out an obligation for data collection within these provisional areas, resulting in significant data gaps (ISA, 2017). A 2016 review of the Environmental Management Plan, undertaken by the Legal and Technical Commission, noted that data has been collected in six APEIs by Contractors and Scientific Cruises, despite there being no obligation to do so (ISA, 2017). However, there remain three APEIs in which no data has been collected (ISA, 2017). It was also highlighted that, based on an assessment of existing data, it is not yet possible to determine if the suggested buffer zone of 100km would be sufficient to avoid plume impacts on the APEIs from adjacent mining activities (ISA, 2017). Consequently, the nine areas of particular environmental interest remain provisional as insufficient data has hindered the review process. Prolonged provisional status could eventually pose a challenge in the Clarion-Clipperton Zone. The EMP recognises the need for implementation of APEIs prior to increases in mining claims which may ultimately compromise the ability to develop a scientifically robust network (International Seabed Authority Legal & Technical Commission, 2012). In other words, as more and more contractor licenses are granted in future, there will be fewer locations that meet the required criteria, and so it may be difficult to move existing areas if found to be inappropriate, which may ultimately reduce the effectiveness of this type of approach.

### 3.6.1 *Monitoring*

The inclusion of provisions for monitoring enables the tracking of approach progress towards meeting management objectives, SDGs and Targets or its effectiveness at addressing pressures. Monitoring can therefore highlight problems, lack of progress and the effectiveness of management within a specified area.

A barrier to effective monitoring can be the number of parties involved in the process and the potential for divergence or inconsistencies in data collection methodologies. Multiple parties can be involved in monitoring and data collection activities under regional scale, transboundary or network-type area-based management approaches.

#### **A robust monitoring programme can facilitate adaptive management**

In the **Florida Keys National Marine Sanctuary**, monitoring programmes have been established to provide data on the health of marine habitats within the sanctuary, water quality and other socio-economic factors. A robust monitoring system such as this, has allowed the Florida Keys management measures to adapt under changing circumstances and has helped to ensure that the most appropriate, effective and scientifically sound management measures are in place (FKNMS, 2014). One such example is the designation of state waters within the marine sanctuary as a “no discharge” zone in 2002. This designation was justified using information collected by the Water Quality Monitoring Project and Coral Reef Evaluation and Monitoring Project (FKNMS, 2014).

A monitoring framework, allowing regular feedback, supports the delivery of approach objectives and targets. For example, the **Lyme Bay Fisheries and Conservation Reserve in the UK** is a local scale management approach, operated using an adaptive process. The extensive monitoring that takes place regarding the biological and socioeconomic aspects of the site means that there are regular feedback processes which enable regular adjustments to management measures. This enables the Lyme Bay Reserve to effectively support the delivery of its own objectives and targets associated with the Habitats Directive (Marine Planning Consultants Ltd., 2014).

### Monitoring challenges and successes

In the case of the **Red Sea and Gulf of Aden Regional Marine Protected Area Network**, differences in national monitoring approaches or capacities within the region limit the availability of data to support the implementation of a Regional Master Plan (PERSGA/GEF, 2002). The standardisation of monitoring practices between the Red Sea countries could enable the collection of data that is comparable at a regional scale. Data comparisons could therefore help management practitioners to measure approach effectiveness and to identify additional management needs or management adaptation across the region.

### 3.6.2 Data sharing

Management plans may also require or advocate data sharing. A number of case studies provide examples of data sharing mechanisms, as outlined below.

#### Data sharing approaches

In the **Pacific North Coast Integrated Management Area**, First Nations have established and manage a regional monitoring system which enables data collection and sharing, analysis of regional trends, and information reporting in ways that meet the needs of their communities. Such an approach encourages stakeholder ownership of management approaches and ultimately helps ensure continued support from community stakeholders.

In the **Coral Triangle Initiative (CTI-CFF)**, member countries are not obliged to share data, and do so on a voluntary basis. As a means of encouraging voluntary data sharing, the CTI-CFF has established a centralised online database for spatial data called the Coral Triangle Atlas (<http://ctatlas.reefbase.org/>). Online databases are just one means of facilitating data exchange and sharing of good practices within a regional management approach.

### 3.6.3 Data Types

The type of data required for area-based management approaches is derived from the objectives or targets of a plan, and should be compatible with any indicators developed to assess progress. A broad spectrum of data types have been found useful in assessing the effectiveness of area-based management approaches. The types of data collected can also be influenced by the attributes of the approach, for example, extensive stakeholder engagement can allow for the collection of local knowledge and data regarding a range of activities. As such, effective implementation of area-based management approaches can be

enabled by the collection of data that specifically aligns with the attributes and objectives of the approach. Consideration at the start of a process of what data may be needed is important to avoid wasted efforts. It is likely that spatial distributions of key habitats and indicator species alongside socioeconomic data for the local communities.

#### Examples of different data types collected

Data collection for **Ridge to Reef management in Fiji**, including the community based Marine Protected Area Network, involved the collation of different types of data including ecological, biological, socioeconomic data and traditional knowledge (WCS, 2012).

In the **Baltic Sea**, pollution from sewage is a problem, causing health hazards for Baltic marine users, visual pollution in coastal areas as well as oxygen depletion from increased nutrient levels. The availability of a wide range of data for **the Baltic Sea Special Sewage Area**, including nutrient concentrations, sewage disposal methods and vessel traffic, has helped formulate the MARPOL Special Area, and will support in tracking its achievement towards minimising waste and addressing the aforementioned issues (contributing to Sustainable Development Goal **Target 12.4**).

Finally it is important to consider the scale for which data is collected. For example, scaling-up local data for one Marine Protected Area for use in a national network of Marine Protected Areas can prove challenging and inaccurate.

#### Data Scale

One example in which data scale presented a challenge is in the **Raja Ampat Marine Protected Area Network in Indonesia**. During the early stages of the development of a zoning plan, data used to inform the process had been collected at various different scales. As a result, it was difficult to compare potential sites for Marine Protected Area Designation and to also assess wider impacts on the network of Marine Protected Areas as a whole.

#### Key findings:

Data collection can support the design of area-based management measures, indicators and provides a baseline for tracking implementation. Monitoring results supports the tracking of progress towards objectives and targets and adaptive management. The use of ecological data in management measure development supports the ecosystem approach.

### 3.7 Use of adaptive process

Adaptive processes allow for management plans and specific management actions to be amended if new information arises concerning the impact of the current management strategies or emerging pressures, such as climate change. Monitoring results could be used by the management agency to adapt management measures, especially if those measures are proving ineffective, in order to progress towards achieving the desired outcomes of the plan.

#### 3.7.1 *Adaptability of planning documents*

Many different types of management plan have been developed to facilitate the implementation of area-based management approaches. The nature of management plans can be of fundamental importance in ensuring an approach is effective, in particular when considering adaptability. Adaptability is an important feature of area-based planning as it can enable more effective management by allowing amendments to specified actions if they are found to be ineffective.

#### Creation of a 'living document'

In response to alarming trends in marine and coastal resource use, in 2007 President Yudhoyono of Indonesia proposed the establishment of a new multilateral partnership between the six Coral Triangle countries to address unsustainable resource use issues: **the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF)**. The CTI-CFF partnership was legally formalised in 2011 through a legally-binding Secretariat Agreement which resulted in a coordinating Regional Secretariat and the establishment of subscription costs for all six member countries to financially support the Secretariat, and formalised coordination procedures (Thomas *et al.*, 2017). Under this partnership, the six Coral Triangle countries worked to design and develop a Regional Plan of Action, which included the development of a framework for the Coral Triangle MPA System, in such a way that is considered to be a 'living' document (CTI-CFF, 2009b). This non-legally binding document collates six member country commitments to area-based management in the region and is designed to be adaptable, for example the document can be amended in response to the acquisition of new information or data for the region. It is also adaptable to situations such as political uncertainty, economic crisis or climate change, which can influence the ability of member countries to fulfil commitments.

#### 3.7.2 *Requirements for review*

The requirement to review a management plan can enable its adaptation, and thus support more effective management. A review process can represent a mechanism through which

evidence from indicator monitoring can be used to inform the adaptive management. Plan review processes can specify how frequently the plan should be reviewed (for example every two - five years) and detail provisions dedicated to inclusion of new information or monitoring results for plan updates.

### Review process supporting change

A number of the case studies demonstrate regular review requirements as part of their management plans. One specific example in which regular review is required and where findings have been integrated into existing management is that of the **Florida Keys National Marine Sanctuary**. There is a legal requirement to review its management plan every 5 years (FKNMS, 2007). In addition to review of the entire plan, various management actions implemented within the sanctuary are subject to periodic review to determine their effectiveness. The information in the condition report for the Florida Keys aids management action review and also supports sanctuary staff in identifying research priorities. For example, in response to damage to coral habitats by boating activities, additional mooring buoys have been installed to reduce harm from boat anchors. Additional outreach education is also being undertaken to try and reduce the adverse impacts of divers and snorkelers through increased awareness.

Adaptability has supported the implementation of management measures in the **Galapagos Particularly Sensitive Sea Area (PSSA)**. Within Particularly Sensitive Sea Areas, management occurs through the implementation of Associated Protective Measures – management measures that have been developed and approved by the International Maritime Organization (IMO, 2006). Guidance from the International Maritime Organization states that Associated Protective Measures, within a designated Particularly Sensitive Sea Area, are evolutionary. Measures can therefore be modified, supplemented or removed, with approval from the International Maritime Organization. In the case of the Galapagos, this evolutionary provision allowed Ecuador (the proponent state) to request a new mandatory ship reporting system and a new traffic separation device in order to improve the effectiveness of the approach (IMO, 2013).

### Key findings:

Adaptive approaches allow planned actions to be modified in light of new information, facilitating more effective progress towards the delivery of SDGs. Ensuring a review process is built into the implementation phase of the approach is important. Legally binding review periods can be valuable, as can ensuring that there is a nominated responsible organisation. A clear mechanism for using the monitoring results in adapting management measures will help ensure more successful adaption.

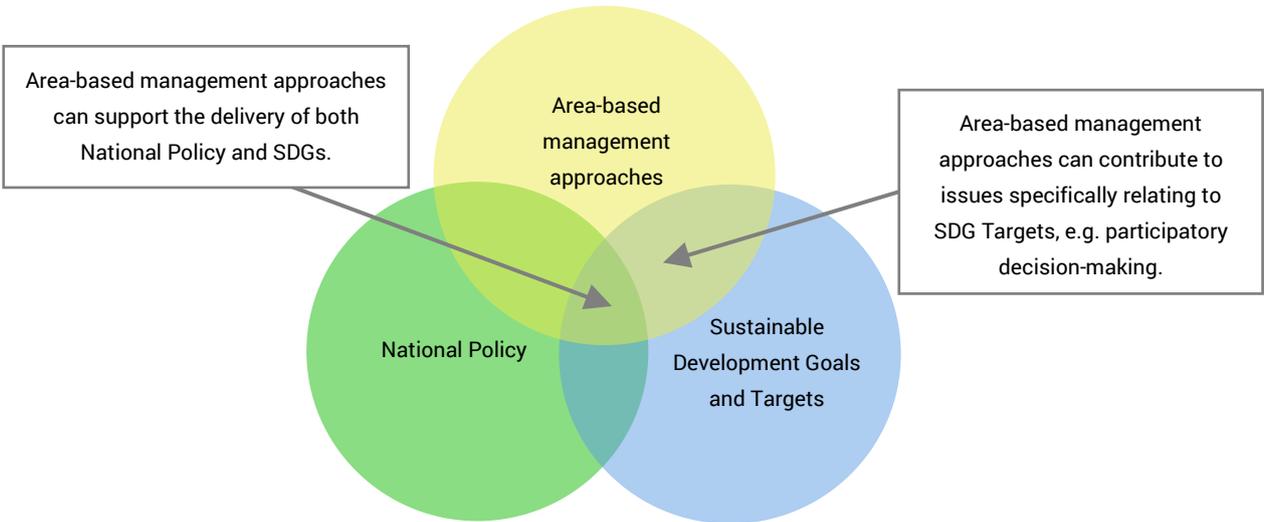
# 4 Key Findings and Guidance

The key findings from this analysis of how twenty-five examples of area-based management approaches support the delivery of policy objectives and targets are presented in this chapter.

The case studies demonstrate that area-based management approaches can contribute towards the delivery of multiple SDGs and Targets. Contributions is frequent across all the SDG 14 Targets (as highlighted in **Figure 2-1**). However, it is clear contributions extend further to many other Goals. The review examined the alignment between the objectives of each of the area-based management approach examined and forty-five SDG Targets. Using evidence from the case studies, it was found that area-based management approaches can contribute to thirty-nine (87%) of the Targets assessed.

The objectives of area-based management approaches aim to deliver those of the national policy under which they are implemented. Therefore, area-based management approaches can contribute to SDGs if the national policy aligns with the objectives of the SDG Targets. In addition to the policy alignment, the way in which an approach is designed and implemented is likely to increase the number of Targets supported, and/or the quality of their contributions. For example, stakeholder engagement is unlikely to be the primary objective of an area-based management approach, however is a key attribute in their design. Therefore, the use of area-based management approaches which include stakeholder engagement, will not only assist in the delivery of the policy objectives, but also contribute to a range of SDG Targets. For example, **Target 16.7** on inclusive and participatory decision-making at all levels. See **Figure 4-1** for an illustration of this.

**Figure 4-1: Demonstration of how area-based management approaches can make cross-cutting contributions**



There are a number of overarching key findings and then key findings that are specifically associated with the attributes and enabling conditions of area-based management approaches.

### Overarching Key Findings

This study has found that marine and coastal area-based management can contribute towards a wide range of SDGs and targets, in addition to SDG 14 'Life below water'.

Use of an area-based management approach to support one SDG Target can indirectly contribute towards others. Recognition of where activities can have a cumulative effect occur may support greater on-the-ground impact. For example, sustainable management of fish stocks under **Target 14)** can also support targets under SDG 2 on food security and SDG 8 on sustainable consumption.

Implementation mechanisms, such as management plans, underpin effective area-based management approach implementation. Plans ideally need to include actions, clear roles and responsibilities and indicators to track progress.

Area-based management approaches may be used in combination and spatially overlap to achieve a range of policy targets. A management authority to coordinate the various approaches may be required.

The next section described the various attributes for area-based management approaches and each attribute is structured in the following way: firstly the attribute is described, then why it provides support to SDG delivery is presented under the heading of relevance, followed by how the attribute can be used is under application and finally the guidance points and an example is provided.

The final section of the report described the enabling conditions which, from the analysis of the case studies, have been found to support more sustainable delivery of an approach.

## 4.1 Key attributes of effective area-based management approaches

To assist the analysis into how area-based management approaches can be effective in supporting the delivery of SDGs, various key attributes have been identified. It is recommended that consideration is given to each of these attributes when identifying and selecting an appropriate approach.

**A number of key attributes identified are recommended for consideration in the design of area-based management approaches to support the achievement of SDGs. Attributes are interlinked and should be considered as a package. Attributes include, stakeholder engagement, an ecosystem-based approach and transboundary cooperation.**

### 4.1.1 *Spatial focus*

**The spatial scale at which an area-based management approach operates is determined by the scale of the issue to be addressed and the underpinning policy through which it has been identified. The scale of management approaches will influence the scope of the objectives for implementation, and will determine the number of actors involved.**

**Description:** The spatial focus of an area-based management approach refers to the scale at which it is applied and whether it applies to both terrestrial and marine realms.

**Relevance:** Consideration of spatial focus allows for the application of area-based management approaches to different scales of issues. The scale of implementation will influence the number of stakeholders involved. For example, a relatively small-scale application could be use of a Locally Managed Marine Area (LMMA) to protect fish and marine mammal nursery habitats of value to a local community. Large-scale application could be the implementation of a MARPOL Special Area to regulate sewage issues within an entire sea basin. Area-based management approaches can also be implemented as a regional framework to guide area-based management at the national or local level.

**Application:** Area-based management approaches have specific boundaries. Designation of boundaries help to clarify which authorities have jurisdiction within the area. Approaches that are inclusive of the terrestrial realm mean that it is possible to address upstream activities that potentially impact on the marine environment, supporting the delivery of **Target 14.1** on pollution. Large-scale framework approaches, for example the systematic use of an approach across a region, can be used to ensure holistic management of an entire ecosystem. Such approaches can encounter challenges in the form of wider stakeholder and institutional engagement, which can require significant additional capacity.

**Example:** In the Ridge to Reef Projects in Grenada and Japan, incentive schemes to encourage good practice for upland activities have been implemented to reduce and mitigate downstream impacts of land-based pollution, thus contributing to **Targets 12.2, 12.4, 14.1**

**and 15.9.** Education programmes have also been implemented to improve understanding and raise awareness of the impacts of terrestrial uses on the marine environment.

The Mediterranean Integrated Coastal Zone Management (ICZM) Protocol provides a regional framework to guide implementation of management measures within the countries of the Mediterranean Region. This facilitates complementary implementation of an approach for overall greater impact, contributing to **Target 14.2** on effective management.

**Guidance:**

**Where an area-based management approach aims to address a pressure on the marine environment, identify the source to define targeted management measures.**

**Identify the scale at which an issue occurs in order to define appropriate boundaries for management.**

**The boundaries for management should be used to identify relevant stakeholders to be engaged in the process.**

**Consider the use of wide-scale framework legislation to support complementary national or provincial approaches.**

#### 4.1.2 *Transboundary approaches*

##### **Area-based management approaches can encourage and support transboundary cooperation**

**Description:** Area-based management approaches are those which cross boundaries such as jurisdictional, administrative or ecological limits.

**Relevance:** Transboundary cooperation between local, national and regional levels of governance may be required if an approach aims to address issues or deliver policies that transcend administrative boundaries or are international in nature.

**Application:** Transboundary approaches can support the delivery of SDG Targets by identifying areas of common interest, allowing regions to leverage economies of scale for management approaches and through the establishment of coordination mechanisms. Establishment of transboundary partnerships or initiatives may provide opportunities to share best practice and experiences between neighbouring entities working to address similar issues, thus contributing towards SDG **Target 17.17**. Supporting cooperation between actors is therefore key to transboundary success, and can guide the delivery of SDG Targets and wider policy objectives at both regional and national levels. Due to the highly connected nature of the marine environment, transboundary approaches can likely facilitate an ecosystem approach as management boundaries will not be restricted by administrative boundaries.

**Example:** In the North-East Atlantic region, the North-East Atlantic Fishery Commission (NEAFC) and the OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic have established a “collective arrangement on cooperation and coordination” (OSPAR & NEAFC, 2015) (**Target 17.16**). Specifically, the two organisations have separately designated overlapping area-based management approaches - Vulnerable Marine Ecosystem (VME) on the seabed for fisheries management and a marine protected area in the water column for conservation and sustainable use (**Target 14.2**).

**Guidance:**

**Identify if a transboundary approach is required to address an issue or deliver upon a policy.**

**Establish coordination mechanisms such as Memoranda of Understanding (MoU), partnerships, working groups or guidance councils, for communication between relevant stakeholders. For example, to determine priority issues and available capacity for approach implementation.**

**Identify the potential for existing regional or transnational structures to support transboundary area-based management approaches.**

#### 4.1.3 *Ecosystem Approach*

**Description:** The *ecosystem approach* (encompassing ecosystem conservation and restoration) takes into consideration the need to support healthy, fully functioning ecosystems for sustainable management.

**Relevance:** The ecosystem approach is considered to be a key component of area-based management approaches and are advocated in many international or regional guidelines. The use of an ecosystem approach facilitates the use of ecological information as a foundation for the development, implementation and adaptation of an area-based management approach. Consideration of the variety of ecosystem services provided to neighbouring communities or stakeholders can facilitate the development of management measures which balance conservation and sustainable resource use. This contributes towards **SDG 14 and 15**, on life below water and life on land, respectively. The marine environment is highly connected, and the ecosystem approach supports the understanding of the transboundary nature of species and habitats.

**Application:** Ecological information, such as oceanic currents, species habitat ranges or migratory mammal routes, can be used to identify areas in which management measures may be required. The boundaries and spatial extent of management approaches can also be informed by ecological information. Ecosystem mapping can be used to inform zoning decisions and identify sensitive habitats. Zones can be established to permit or prohibit specific activities and can balance conservation and sustainable uses. Ecosystem mapping

is interlinked with the collection of data. The spatial boundaries of area-based management approaches are often defined by administrative boundaries, therefore highlighting the need for transboundary considerations where ecosystems cross such borders.

**Example:** Large Marine Ecosystems (LME) - large areas (over 200,000 km<sup>2</sup>) of highly productive coastal waters adjacent to continents – are identified and delineated using ecological information. For example, the Bay of Bengal LME is being considered for funding to improve regional environmental and fisheries management to support coastal communities which may support **Targets 14.9 and 15.9**.

**Guidance:**

**Use ecosystem mapping to identify priority management areas.**

**Identify sectoral dependencies on ecosystem services.**

**Recognise the transboundary nature of ecosystems.**

#### 4.1.4 *Sector focus*

**The sectoral focus of area-based management approaches influences the potential for contributions to SDG Targets. Overlapping designations can be used in conjunction for comprehensive management.**

**Description:** Area-based management approaches can focus on single or multiple sectors, depending on their policy ambitions. Approaches can be targeted to address specific issues or policy areas. For example, single sector measures, such as Particularly Sensitive Sea Areas which relate to shipping. Multi-sector approaches include marine spatial planning and integrated coastal zone management.

**Relevance:** The number of sectors included within an area-based management approach will influence the range of issues it can address, and ultimately the SDG Targets it can support. Single-sector approaches can be used to address a sector-specific issues and can contribute to fewer, specific SDG Targets. Multi-sectoral approaches encourage collaborative management and involve larger numbers of stakeholders and relevant policies, therefore generally have the potential to contribute to a larger number of SDG Targets.

**Application:** Single-sector approaches are generally implemented by the governing institution of the respective sector. For example the International Seabed Authority which regulates seabed mining activities. Multi-sector approaches can be implemented by a dedicated coordinating body, with a mandate to encourage and facilitate communication between different sectors to achieve coordinated management. Multi– and single– sector approaches can often be used in together in the same location to achieve comprehensive management. For example, single-sector fisheries closures can be implemented as part of a multi-sector zoning plan developed under a Marine Spatial Planning approach.

**Example:** The Baltic Sea is designated as a Special Area for Sewage under MARPOL – an area in which the discharge of untreated sewage is prohibited and the use of port disposal facilities is required. The Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea for the Baltic Marine Environment (HELCOM) coordinates activities in relation to the improvement of port sewage reception facilities in each of the Baltic Sea Countries. Such improvements will enable future pollution reduction, demonstrating the potential for contributions towards **Targets 12.4, 14.1 and 14c**.

In **Belize, an Integrated Coastal Zone Management Plan** was developed under the Coastal Zone Management Act (1998). Plan development, led by the Coastal Zone Management Authority and Institute (CZMAI), was undertaken over a six year period and involved extensive multi-stakeholder participation to ensure management measures were multi-sectoral in nature (**Target 16.7 and 17.16**) (Verutes *et al.*, 2017). Participating sectors included, *inter alia*, extractive and non-extractive uses, commercial fishing, environment, heritage and tourism.

**Guidance:**

**Identify drivers of the issue to be addressed and the relevant sectors to this issue.**

**Consider the use of a combination of approaches in order to achieve a variety of objectives.**

**Consider the need for a coordinating body or other communication mechanism for overlapping approaches.**

#### 4.1.5 *Stakeholder engagement*

**Engaging stakeholders increases participation, partnerships and compliance with area-based management measures. Mechanisms for engagement need to be designed according to the local context. A key factor is time to build trust between different stakeholder groups.**

**Description:** Stakeholder engagement involves the participation of affected stakeholders in planning, design and/or implementation of area-based management measures. Stakeholders could include representatives from local communities, marine sectors and government.

**Relevance:** Stakeholder engagement is important in both single– and multi– sector planning processes to ensure the needs of relevant stakeholders are considered. Stakeholder engagement enables the collection of different stakeholder interests, concerns and knowledge (including traditional knowledge). Such information can be incorporated into planning processes and help ensure that the development of area-based management approaches is based on best available information, from a range of sources. Stakeholder participation can improve transparency, stakeholder understanding of– and the rationale for– management approach implementation, stakeholder buy-in and a sense of ownership which can improve compliance and participation in decision-making, thus contributing to **Target 16.7** on participatory and representative decision-making. Furthermore, forming

partnerships between different stakeholders across administrative boundaries can support the achievement of SDGs by

**Application:** Relevant stakeholders can be identified on a case-by-case basis. Stakeholder participation can occur via a variety of engagement mechanisms. For example, the establishment of a steering committee, advisory council, working group comprising representatives from different sectors, or users or an area; or through a co-management approach. Stakeholder engagement facilitates a bottom-up management approach via the inclusion of stakeholders and the consideration of their needs in decision-making. Partnerships, or the establishment of collaborative relationships, between stakeholders can be formed during engagement processes. Such partnerships can encourage a unified approach to sustainable management of natural resources, which contributes to **Targets 17.16 and 17.17** on partnerships.

**Example:** In the Belize Coastal and Marine Spatial Planning Process, participation of different levels of society in decision-making was facilitated by the establishment of multi-stakeholder Coastal Advisory Committees, which comprised representatives from the public and private sectors, educational institutions, NGOs and civil society supporting **Target 17.16**.

**Guidance:**

**Identify relevant stakeholders to the area-based management approach.**

**Select appropriate stakeholder engagement mechanism based on context, resources and desired outcome. Consider experiences from other locations in selection process. See below for examples.**

- *Formal consultations on plans and strategies:* carried out in the Bioregional Planning case study in Australia; in the planning process for the Black Sea MPA network in Romania and Bulgaria; or throughout the policy development and implementation of the North American Emission Control Area in Canada;
- *Workshops:* action planning workshops for the development of the Strategic Action Plan for the Bay of Bengal Large Marine Ecosystem Project;
- *Public meetings:* for example those held during the ICZM process for the Patagonian Coastal Zone in Argentina;
- *Outreach and education programmes:* the Wadden Sea PSSA case study outreach was undertaken to raise awareness of the risks and environmental impacts of shipping and the associated protective measures in the Wadden Sea area; and
- *Volunteering programmes:* used in the Florida Keys National Marine Sanctuary to provide opportunities for local citizens to get actively involved in the implementation of management measures or other Sanctuary activities.

#### 4.1.6 Data

**Data collection can support the design of area-based management measures, indicators and provides a baseline for tracking implementation. Monitoring results supports the tracking of progress towards objectives and targets and adaptive management. The use of ecological data in management measure development supports the ecosystem approach.**

**Description:** The information used to inform management approach development and implementation. The type of data, and the scale at which it is collected, is derived from the objectives or targets of the management approach. For example, ecological, oceanographic and socio-economic data. Some data will be spatial in nature, however additional non-spatial data or information may be required, such as relevant legislation.

**Relevance:** Data is collected to identify issues and inform the development of management measures for a specified area. The use of 'best available data' enables evidence-based planning and adaptive management. Baseline data can be collected to help track progress of the approach. Data collection via monitoring programmes allow for changes to be tracked and can help in the identification of priority sites, spatially overlapping activities and human-economic dependencies on marine resources in the area. Data can be used in zoning plans to identify appropriate management measures for certain areas and prevent user conflicts. Collecting information can allow managers to build a picture regarding the effectiveness of an approach, monitor progression towards SDG targets, and amend management measures as required. Data supports the identification area-based management approach boundaries, depending on the objectives of the process. It can help to identify which stakeholders and sectors need to be engaged. Sharing data about a management approach can aid review processes and help maintain support and create a sense of ownership amongst stakeholders.

**Application:** Initial data collection to support the development of a management approach can occur via, *inter alia*, primary data collection, searches for existing data held by institutions or individuals and participatory mapping processes. Data can be collected via different mechanisms, such as the establishment of monitoring programmes involving governmental agencies, community-based monitoring or citizen science and through university partnerships. The data collection method should be identified based on available resources. Indicators can be developed to track progress towards the achievement of approach objectives. The types of data collected should be compatible with any indicators developed to assess approach effectiveness. Data mapping ecosystem extent can support the application of the ecosystem approach demonstrating the linked nature of these attributes.

**Example:** In the Florida Keys National Marine Sanctuary, monitoring programmes have been established to collect data on the health of marine habitats within the sanctuary, water

quality and other socio-economic factors. A robust monitoring system such as this, has allowed the Florida Keys management measures to adapt under changing circumstances and has helped to ensure that the most appropriate, effective and scientifically sound management measures are in place (FKNMS, 2014).

**Guidance:**

**Use data to identify appropriate management boundaries.**

**At the start of a process identify what data may be needed and how data will be collected to avoid wasted efforts and duplication of effort.**

**Consider appropriate data collection methods for available resources. Options include community-based monitoring and university partnerships.**

**Collect or source baseline data to inform the development of indicators and for tracking approach effectiveness.**

**Implement regular monitoring activities to provide data for adaptive management.**

**Consider data sharing mechanisms, such as a data sharing platform, to increase transparency, stakeholder engagement and to communicate the process.**

#### **4.1.7 Adaptive management**

**Adaptive approaches allow planned actions to be modified in light of new information, facilitating more effective progress towards the delivery of SDGs. Ensuring a review process is built into the implementation phase of the approach is important. Legally binding review periods can be valuable, as can ensuring that there is a nominated responsible organisation. A clear mechanism for using the monitoring results in adapting management measures will help ensure more successful adaption.**

**Description:** Adaptive management is the amendment of management plans and measures in response to new evidence from monitoring and data collection programmes.

**Relevance:** Adaptability is an important attribute of area-based management approaches as it can enable responsive management via amendments to specified actions if they are found to be ineffective. Management plan review processes should specify how frequently the plan should be reviewed (for example every 5 years) and detail provisions dedicated to inclusion of new information or monitoring results for plan updates.

**Application:** Management plans can be developed to facilitate the implementation of area-based management approaches. Approach objectives, priority issues, management measures and monitoring and review activities should all be stated in the management plan. The roles and responsibilities of relevant organisations and individuals should also be specified. Management plan review can be undertaken regularly throughout the

implementation, depending upon the objectives of the approach. Review can also be triggered by specific occurrences, such as natural disasters, significant economic or ecological change. Management plans can be developed as ‘living documents’ which can be adapted iteratively throughout approach implementation.

**Example:** Adaptability has supported the implementation of management measures in the Galapagos Particularly Sensitive Sea Area (PSSA). In the case of the Galapagos, this evolutionary nature of International Maritime Organization-approved Associated Protective Measures allowed Ecuador (the proponent state) to request a new mandatory ship reporting system and a new traffic separation device in order to improve the effectiveness of the approach (IMO, 2013).

**Guidance:**

**Outline review processes within area-based management approach management plans.**

**Include information on:**

- The required/suggested frequency of review;
- Provisions on collation and communication of results;
- Descriptions of management roles and responsibilities; and
- Process for adapting management measures in light of review results

## 4.2 Enabling conditions

The extent to which area-based management approaches can support the delivery of SDG Targets is dependent upon how effectively they can be implemented in line with their objectives. The implementation of an area-based management approach is influenced by a range of different contextual conditions which can enable or hinder implementation – referred to here as ‘enabling conditions’ and ‘barriers’. For example, social, political, economic, or environmental conditions. Using various lessons learned from the case studies, the guidance provided aims to support the overcoming of potential barriers to effective implementation to influence the potential for an approach to contribute towards the delivery of SDGs and Targets.

### 4.2.1 Legal frameworks

**Both legally binding and non-binding frameworks can support the implementation of area-based management approaches. Legal frameworks can support compliance with measures and provide increased resource management power. Voluntary agreements can provide a foundation on which to build trust and buy-in. Processes started under non-binding agreements, can evolve to include legal aspects if those involved in the process feel it is**

**necessary. Customary law can be cemented formally into national legislation through review and engagement in an area-based planning process where government support exists.**

A legal mandate can provide valuable support to the implementation of area-based management approaches. The legal framework used to develop and implement area-based management approaches can pre-exist, or can be created for the purposes of implementing the approaches, and an approach can draw upon more than one legal framework in its implementation. Contrastingly, some approaches may operate on a non-binding basis, under a voluntary agreement established in consultation with stakeholders, and based on goodwill.

An effective legal or voluntary framework depends on the design of the area-based management approach and the environmental, socioeconomic and institutional circumstances in which it is being applied – no one size fits all. Both legally and non-legally binding frameworks for approach implementation can be used to progress towards the achievement of SDGs.

#### **Guidance**

**Review existing legal frameworks during approach selection, planning and implementation to identify gaps or where existing legislation is sufficient.**

#### **4.2.2 Institutional frameworks**

**Organisational leadership and coordination of area-based management approaches requires a leadership mandate, and dedicated financial, human and technical capacity. An organisational institution can be established or identified from existing institutions which have been given area-based management responsibilities.**

There are a variety of institutional structures that can lead area-based planning and management processes, including governments, organisations with governmental support, independent non-governmental organisations, local communities, or a combination of these. A number of institutional attributes have been found to support planning and management processes, for example leadership, technical skills, a legal mandate and collaboration mechanisms. Planning and implementation of area-based management approaches benefits from the establishment of a coordination mechanism to facilitate cooperation and collaboration between different agencies (horizontal), and various levels of government and communities (vertical). Examples include the establishment of a coordination committee, a secretariat to manage transboundary agreements, or a working group dedicated to coordination.

#### **Guidance**

**Review institutional capacity to identify if a leadership organisation/governmental department exists.**

**If required, establish an independent authority, with a government mandate and long-term presence.**

**Implement vertical and horizontal coordination mechanisms support coherent management decisions.**

### 4.2.3 *Funding*

**Stable funding underpins the long-term sustainability of an area-based management approach. Funding can come from a variety of sources including: tourism fees and increased value of products through certification and sustainable yield mechanisms.**

Area-based management approaches benefit from the inclusion of a long-term financial strategy and mechanisms that enable secure, sustainable funding. Particular funding options suitable for area-based management approaches include:

#### **Application:**

- **Tourism fees:** the application of a user fee system for tourists who wanted to dive, snorkel or swim in the protected area. User fee revenue has been fed back into the supporting management activities.
- **Sustainable branding:** Certification for fish caught in the management area to increase value.
- **Alternative Income Generation:** Use activities such as aquaculture, alternative fishing areas or other sources of food to support communities if livelihoods have been disrupted.
- **Licensing fees** implemented for marine users, for example seaweed farmers in the Philippines (A. White, 2018);
- **Payments for ecosystem services**, such as carbon sequestration by mangrove and seagrass ecosystems ('blue carbon'), which is being tested in Barbados;
- **Debt-for-nature swaps** to support area-based management. For example, marine spatial planning in the Seychelles Exclusive Economic Zone, focusing on sustainable development climate change adaptation and biodiversity conservation (TNC, 2018);
- **Establishment of Trust Funds** to provide dedicated funds in support of area-based management approaches and thus reduce competition between proximate designations or proposals. For example, MPA establishment in the Mediterranean (S. Petit, 2018).
- **In-kind funding:** some universities that conduct research could generate data or evidence to populate indicators as part of a monitoring programme for an area-based management approach. Consideration of potential partnerships with universities,

NGOs and managers of an area-based management approach during plan development may help to identify sources of in-kind contributions which could be used to help planning and implementation, e.g. mapping expertise in the development of zoning plans.

#### **Guidance**

**Include mechanisms to secure self-sustaining funding in approach management or implementation plans.**

**Identify partners to provide in-kind support.**

### **4.3 Conclusion**

The results and guidance offered in this report can provide practitioners and policy-makers with the tools and inspiration to use area-based management approaches in pursuit of the SDGs. This report is based on the results of twenty-five case studies that highlight the potential to achieve different SDG Targets in different contexts. Where the aims of national policies and SDG Targets align, there is strong potential for area-based management approaches to support the delivery of both. Area-based management approaches implemented prior to the establishment of the SDGs, and which aim to tackle widespread and longstanding issues faced by humanity, can support the delivery of a range of SDG Targets. Recognising enabling factors, such as a dedicated legal framework or sustainable funding mechanisms, and the use of monitoring evidence to facilitate adaptation of an approach can enable area-based management approaches make valuable contributions towards the delivery of SDG Targets. Many countries are already progressing towards the delivery of SDGs. Focused national and regional actions, which include the use of area-based management approaches, can therefore support continued progress towards the global delivery of SDGs and associated Targets.

## 5 References

Agostini, V. N. *et al.* (2012) 'Achieving Fisheries and Conservation Objectives within Marine Protected Areas: Zoning the Raja Ampat Network', *The Nature Conservancy, Indo-Pacific Division, Denpasar*, (2), p. 71. Available at: [file:///C:/Users/Isabella/Downloads/Agostini etal12\\_Raja Ampat Zoning REPORT.pdf](file:///C:/Users/Isabella/Downloads/Agostini%20etal12_Raja%20Ampat%20Zoning%20REPORT.pdf).

Blue Ventures (2017) *Locally Led Marine Conservation*. Available at: <https://blueventures.org/conservation/community-conservation/> (Accessed: 28 September 2017).

BOBLME (2011) *Bay of Bengal Large Marine Ecosystem Project*.

BOBLME (2012) *Transboundary Diagnostic Analysis Volume 1: Issues, Proximate and Root Causes*. Available at: [http://www.boblme.org/documentRepository/BOBLME-2012-TDA-Volume\\_1.pdf](http://www.boblme.org/documentRepository/BOBLME-2012-TDA-Volume_1.pdf).

BOBLME (2015a) 'Strategic Action Programme', *Bay of Bengal Large Marine Ecosystem*, p. 56.

BOBLME (2015b) *Strategic Action Programme. Bay of Bengal Large Marine Ecosystem Project*.

BOBLME (2017) *The Bay of Bengal Large Marine Ecosystem (BOBLME) Project*. Available at: [http://www.boblme.org/project\\_overview.html](http://www.boblme.org/project_overview.html) (Accessed: 28 September 2017).

Boicenco, L. and Milkova, T. (2016) 'Training on Fundamental Concepts and Processes of the Marine Strategy Framework Directive Antalya, 7-11 November 2016 Progress and Coordinated activities on Implementation of MSFD art. 8, 9 and 10 in Bulgaria and Romania Bulgaria / Black Sea Basin Directo'. Available at: <http://marinturkproject.com/uploads/3.2.1.pdf> (Accessed: 30 June 2017).

Christie, P. *et al.* (2016) 'Improving human and environmental conditions through the Coral Triangle Initiative: Progress and challenges', *Current Opinion in Environmental Sustainability*. Elsevier B.V., 19, pp. 169–181. doi: 10.1016/j.cosust.2016.03.002.

Coastal Zone Management Authority and Institute (CZMAI) (2016) *Belize Integrated Coastal Zone Management Plan*. Belize City, Belize.

Cripps, G. and Harris, A. (2009) *Community creation and management of the Velondriake marine protected area, Blue Ventures Conservation Report*. Available at: [https://bjyv3zhj902bwxa8106gk8x5-wpengine.netdna-ssl.com/wp-content/uploads/2015/10/Cripps\\_Harris\\_2009\\_Unknown\\_Community\\_creation\\_and\\_management\\_of\\_the\\_Velondriake\\_marine\\_protected\\_area.pdf](https://bjyv3zhj902bwxa8106gk8x5-wpengine.netdna-ssl.com/wp-content/uploads/2015/10/Cripps_Harris_2009_Unknown_Community_creation_and_management_of_the_Velondriake_marine_protected_area.pdf) (Accessed: 28 September 2017).

CTI-CFF (2009a) 'Coral Triangle Initiative Leaders' Declaration on Coral Reefs, Fisheries and Food Security'. Manado, Indonesia.

CTI-CFF (2009b) *Regional Plan of Action*. Manado, North Sulawesi, Indonesia: CTI-CFF Regional Secretariat.

CTI-CFF (2016) *The Agreement on the Establishment on the Regional Secretariat of the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) (Rules of Procedure; Staff Regulations; Financial Regulations)*. Available at: [http://www.coraltriangleinitiative.org/sites/default/files/resources/The Agreement on The](http://www.coraltriangleinitiative.org/sites/default/files/resources/The%20Agreement%20on%20The)

Establishment of RS CTI-CFF\_Newest\_2017\_compressed.pdf (Accessed: 30 June 2017).

CTI-CFF (2017) *CTI-CFF Regional Map*. Available at: <http://www.coraltriangleinitiative.org/cti-cff-regional-map>.

CTI-CFF Marine Protected Areas Technical Working Group (2013) 'Coral Triangle marine protected area system (CTMPAS) framework and action plan'.

Direção-Geral de Política do Mar (2017) *National Ocean Strategy 2013-2020*. Edited by Uzinabooks. Lisbon, Portugal: Uzinabooks. Available at: [https://issuu.com/dgpm\\_portugal/docs/nos2013\\_2020](https://issuu.com/dgpm_portugal/docs/nos2013_2020).

Day J., Dudley N., Hockings M., Holmes G., Laffoley D., Stolton S. & S. Wells, 2012. Guidelines for applying the IUCN Protected Area Management Categories to Marine Protected Areas. Gland, Switzerland: IUCN. 36pp

Ehler, C. and Douvère, F. (2009) *Marine Spatial Planning: a step-by-step approach toward ecosystem-based management*. doi: Intergovernmental Oceanographic Commission and Man and the Biosphere Programme.

European Commission (2017) *Maritime Spatial Planning Country Information: Portugal*. European MSP Platform. Available at: [www.msp-platform.eu](http://www.msp-platform.eu).

European Commission and UNESCO (2017) 'Joint Roadmap to accelerate Maritime / Marine Spatial Planning processes worldwide (MSP)', *Marine/Maritime Spatial Planning, 15-17 March 2017, Paris, UNESCO HQ*, p. 5.

European Council (2009), "2009/89/EC: Council Decision of 4 December 2008 on the signing, on behalf of the European Community, of the Protocol on Integrated Coastal Zone Management in the Mediterranean to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean", Document 32009D0089, 32009D0089, Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1530290868716&uri=CELEX:32009D0089>

FAO (2009b) *International Guidelines for the Management of Deep-Sea Fisheries in the High Seas*. Rome, Italy.

FAO (2010) 'Ecosystem approach to fisheries', *October*, (November), pp. 19–20.

FAO (2014) *FAO Term Portal: Area Closure*. Available at: <http://www.fao.org/faoterm/en/>.

FAO (2016) 'Final evaluation of Sustainable Management of the Bay of Bengal Large Marine Ecosystem (BOBLME) Project', *Project Evaluation Series*, (April).

FAO and GEF (no date) *FAO/Global Environment Facility Project Document: Sustainable Management of the Bay of Bengal Large Marine Ecosystem (BOBLME)*. Available at: [http://www.boblme.org/documentRepository/BOBLME\\_Project\\_Document\\_FINAL.pdf](http://www.boblme.org/documentRepository/BOBLME_Project_Document_FINAL.pdf).

FKNMS (2007) *Florida Keys National Marine Sanctuary Revised Management Plan*.

FKNMS (2014) *Florida Keys National Marine Sanctuary Research and Monitoring*. Available at: [http://floridakeys.noaa.gov/research\\_monitoring/welcome.html](http://floridakeys.noaa.gov/research_monitoring/welcome.html) (Accessed: 30 June 2017).

Florida Keys National Marine Sanctuary (2017) *At this time, the focus is on monitoring existing artificial reefs within Florida Keys National Marine Sanctuary to determine their long-term effects*

on the natural ecosystem as opposed to initiating new projects. Available at: <https://floridakeys.noaa.gov/artificialreefs/more.html> (Accessed: 28 September 2017).

GEF (2006) *Implementation Completion Memorandum (ICM): Vietnam: Hon Mun Marine Protected Area Pilot Project*.

GEF (2017a) *Consolidation and Implementation of the Patagonia Coastal Zone Management Programme for Biodiversity Conservation*. Available at: <https://www.thegef.org/project/consolidation-and-implementation-patagonia-coastal-zone-management-programme-biodiversity> (Accessed: 18 September 2017).

GEF (2017b) *Inter-jurisdictional System of Coastal-Marine Protected Areas (ISCMPA)*. Available at: <https://www.thegef.org/project/inter-jurisdictional-system-coastal-marine-protected-areas-iscmpa> (Accessed: 18 September 2017).

GEF (2017c) *Patagonian Coastal Zone Management Plan*. Available at: <https://www.thegef.org/project/patagonian-coastal-zone-management-plan> (Accessed: 18 September 2017).

GEF (no date) *GEF EO Terminal Evaluation Review Form: Hon Mun Marine Protected Area Pilot Project*.

Govan, H. et al. (2008) *Locally-Managed Marine Areas: A guide to supporting Community-Based Adaptive Management*. Available at: <http://www.reefresilience.org/wp-content/uploads/LMMA-Guide-2008.pdf>.

Government of Belize (2003) *Coastal Zone Management Act Chapter 329 Revised Edition, The Substantive Laws of Belize*. Belmopan. Available at: <https://www.coastalzonebelize.org/wp-content/uploads/2010/04/cap329.pdf>.

Governo de Portugal (2014) *National Ocean Strategy 2013–2020, Ministry of Agriculture and Sea, Portuguese Government*. Available at: <https://www.cbd.int/doc/meetings/mar/mcbem-2014-04/other/mcbem-2014-04-pt-strategy-2013-2020-en.pdf> (Accessed: 27 September 2017).

Grenada R2R Project (2016) 'The R2R Newsletter of the GEF/UNDP Ridge to Reef Project', pp. 1–6.

Harris, A., Blue Ventures, *pers comms*, 12<sup>th</sup> September 2017

Heinrichs, S. (2011) *A Shelter for Sharks. Indonesia declares a new sanctuary for sharks and rays in one of the world's most biodiverse ecosystems*.

HELCOM Baltic Marine Environment Protection Commission (2015) 'Ships' Sewage in the Baltic Sea -New Special Area Regulations'. HELCOM, pp. 6–7.

HELCOM Baltic Marine Environment Protection Commission (2017) 'Sewage discharges from ships and port reception facilities', St Petersburg, Russia Available at: [https://portal.helcom.fi/meetings/MARITIME%2017-2017-409/MeetingDocuments/5-2%202017%20HELCOM%20Overview%20on%20Port%20Reception%20Facilities%20\(PRF\).pdf](https://portal.helcom.fi/meetings/MARITIME%2017-2017-409/MeetingDocuments/5-2%202017%20HELCOM%20Overview%20on%20Port%20Reception%20Facilities%20(PRF).pdf)

IMO (2006) *Revised Guidelines for the identification and designation of Particularly Sensitive Sea Areas*. Available at: <http://www.imo.org/en/OurWork/Environment/PSSAs/Documents/A24-Res.982.pdf> (Accessed: 30 June 2017).

IMO (2013) *Galapagos Archipelago PSSA Associated Protective Measures*. Available at: <http://pssa.imo.org/galapagos/law.htm> (Accessed: 15 September 2017).

IMO (2017) *Special Areas Under MARPOL*. Available at: <http://www.imo.org/en/OurWork/Environment/SpecialAreasUnderMARPOL/Pages/Default.aspx> (Accessed: 30 June 2017).

International Council for Science (2017) *A guide to SDG interactions: from science to implementation*. Edited by A. S. D.J. Griggs, M. Nilsson and D. M. (eds). Paris, France: International Council for Science. doi: 10.24948/2017.01.

International Maritime Organization (2006) 'Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas', *Resolution A.982(24)*, (February).

International Maritime Organization (IMO) (2017) *Sulphur oxides (SOx) – Regulation 14*. Available at: [http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Sulphur-oxides-\(SOx\)-Regulation-14.aspx](http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Sulphur-oxides-(SOx)-Regulation-14.aspx) (Accessed: 28 September 2017).

International Seabed Authority Legal & Technical Commission (2012) *Environmental Management Plan for the Clarion-Clipperton Zone*. ISBA/17/LTC/7. 13 July 2011. Jamaica.

ISA (2017) *Towards an ISA Environmental Management Strategy for the Area*. ISA Technical Study No:17, Report of an International Workshop convened by the German Environment Agency, the German Federal Institute for Geosciences and Natural Resources the Secretariat of the International Seabed Authority in Berlin, Germany 20-24 March 2017. Berlin, Germany. Available at: <https://www.isa.org.jm/sites/default/files/files/documents/berlinrep-web.pdf>.

IUCN (2008) *Guidelines for Applying Protected Area Management Categories*. Edited by N. Dudley. Gland, Switzerland. Available at: [http://cmsdata.iucn.org/downloads/guidelines\\_for\\_applying\\_protected\\_area\\_management\\_categories.pdf](http://cmsdata.iucn.org/downloads/guidelines_for_applying_protected_area_management_categories.pdf).

IUCN (2017) *Ridge to Reef | IUCN*. Available at: <https://www.iucn.org/theme/water/our-work/ridge-reef> (Accessed: 30 June 2017).

IUCN World Commission on Protected Areas (2008) *Establishing Resilient Marine Protected Area Networks – Making It Happen*.

Jupiter, S. (2011) 'Defining Ecosystems at different scales', *Making EBM Accessible: Guide Offers User-Friendly Advice on Putting Marine and Coastal EBM into Practice*. *Marine Ecosystems and Management*, 4(6), pp. 1–8.

Jupiter, S. D. and Egli, D. P. (2011) 'Ecosystem-Based Management in Fiji: Successes and Challenges after Five Years of Implementation', *Journal of Marine Biology*, 2011 (September 2017), pp. 1–14. doi: 10.1155/2011/940765.

Jupiter, S. and Williams, H. (no date) *Fiji: Local Management Yields Multiple Benefits at the Namena Marine Reserve*, *World Resources Institute*. Available at: <http://www.wri.org/fiji-local-management-yields-multiple-benefits-namena-marine-reserve> (Accessed: 15 September 2017).

Khuu, T.D., Institute for Sustainable Resources, University College London, *pers comms*, 10<sup>th</sup>

June 2018

Kincaid, K., Rose, G. and Devillers, R. (2017) 'How fisher-influenced marine closed areas contribute to ecosystem-based management: A review and performance indicator scorecard', *Fish and Fisheries*, (March). doi: 10.1111/faf.12211.

Kummu, M. *et al.* (2016) 'Over the hills and further away from coast: global geospatial patterns of human and environment over the 20th–21st centuries', *Environmental Research Letters*, 11(3), p. 34010. doi: 10.1088/1748-9326/11/3/034010.

Leeworthy, V. R., Maher, T. and Stone, E. A. (2006) 'Can artificial reefs alter user pressure on adjacent natural reefs?', *Bulletin of Marine Science*, 78(1), pp. 29–38.

Lewis, N., Day, J.C., Wilhelm, A., Wagner, D., Gaymer, C., Parks, J., Friedlander, A., White, S., Sheppard, C., Spalding, M., San Martin, G., Skeat, A., Taei, S., Teroroko, T., Evans, J. (2017). Large-Scale Marine Protected Areas: Guidelines for design and management. Best Practice Protected Area Guidelines Series, No. 26, Gland, Switzerland: IUCN. xxviii + 120 pp

LME (2017) *Large Marine Ecosystems of the World*. Available at: [http://www.lme.noaa.gov/index.php?option=com\\_content&view=article&id=1&Itemid=112](http://www.lme.noaa.gov/index.php?option=com_content&view=article&id=1&Itemid=112) (Accessed: 30 June 2017).

Long, R. (2017) 'Working towards sustainability in Madagascar's reef octopus fishery: a journey of improvement', *Developing World, Environmental impact, Improving fisheries, Sustainable Seafood Marine Stewardship Council*, February. Available at: <http://blog.msc.org/blog/2017/02/02/sustainability-madagascar-octopus/>.

Marine Planning Consultants Ltd. (2014) 'Lyme Bay Fisheries and Conservation Reserve: Integrated Fisheries Management Plan. A report produced for the Lyme Bay Fisheries and Conservation Reserve Working Group, UK.' Available at: [http://lymebayreserve.co.uk/download-centre/files/LymeBay\\_MAINREPORT\\_IntegratedMgt\\_180914.pdf](http://lymebayreserve.co.uk/download-centre/files/LymeBay_MAINREPORT_IntegratedMgt_180914.pdf) (Accessed: 30 June 2017).

Mayol, T. L. (2013) 'Madagascar's nascent locally managed marine area network', *Madagascar Conservation & Development*, 8(2). Available at: <http://www.blueventures.org/conservation-reports/madagascars-nascent-locally-managed-marine-area-network.html>.

Ministry of Environment Government of Japan, ICRI and WWF (2015) *Case studies: from Ridge to Reef: Implementing coral reef conservation and management through a community-based approach emphasizing land-sea connectivity*.

National Marine Sanctuary Program (2007) *Florida Keys National Marine Sanctuary Revised Management Plan*.

NEAFC (1980) *Convention on future multilateral cooperation in North-East Atlantic fisheries (NEAFC)*.

NEAFC (2015) 'Protection of VMEs in NEAFC Regulatory Areas as Amended by Recommendation 09:2015', *Recommendation 19 2014*.

NEAFC (2017) *North East Atlantic Fisheries Commission: Managing Fisheries in the North East Atlantic*. Available at: <https://www.neafc.org/> (Accessed: 28 September 2017).

NEAFC and OSPAR (2015) 'On the Process of Forming a Cooperative Mechanism Between NEAFC and OSPAR from the First Contact to a Formal Collective Arrangement'.

NOAA (2014) *Partnership Brings Scuba Diving to Household Screens, Science & Exploration: 2014 National Marine Sanctuaries Annual Report*. Available at: <https://sanctuaries.noaa.gov/report2014/science.html> (Accessed: 7 September 2017).

NOAA (2017a) *Introduction to the LME Portal: The Large Marine Ecosystem Approach to the Assessment and Management of Coastal Ocean Waters*. Available at: [http://www.lme.noaa.gov/index.php?option=com\\_content&view=article&id=1&Itemid=112](http://www.lme.noaa.gov/index.php?option=com_content&view=article&id=1&Itemid=112) (Accessed: 4 September 2017).

NOAA (2017b) *What is an LMMA?* Available at: [http://www.lme.noaa.gov/index.php?option=com\\_content&view=article&id=1&Itemid=112](http://www.lme.noaa.gov/index.php?option=com_content&view=article&id=1&Itemid=112) (Accessed: 30 June 2017).

Office of National Marine Sanctuaries (2011) *Florida Keys National Marine Sanctuary Condition Report 2011*. Silver Spring MD.

OSPAR & NEAFC (2015) 'North-East Atlantic Fisheries Commission Collective arrangement between competent international organisations on cooperation and coordination regarding selected areas in areas beyond national jurisdiction in the North - East Atlantic', (September). Available at: <http://www.ospar.org/documents?v=33030>.

OSPAR Commission (2013) 'OSPAR Recommendation 2010/13 on the Management of the Charlie-Gibbs South Marine Protected Area', p. 9.

PEGASO Project (no date) *PEGASO Project Introduction*. Available at: <http://www.vliz.be/projects/pegaso/project-overview.html> (Accessed: 9 November 2017).

PERSGA/GEF (2002) *The Red Sea and Gulf of Aden Regional Network of Marine Protected Areas. Regional Master Plan. PERSGA Technical Series No.1. PERSGA, Jeddah*.

Petit, S., PAP/RAC, *pers comms*, 30<sup>th</sup> May 2018

PNCIMA Initiative (2017a) *Pacific North Coast Integrated Management Area Plan*. Available at: <http://www.pncima.org/media/documents/2016-plan/2316-dfo-pncima-report-v17-optimized.pdf>.

PNCIMA Initiative (2017b) 'Pacific North Coast Integrated Management Area Plan', p. vii-78. Available at: <http://www.pncima.org/media/documents/2016-plan/2316-dfo-pncima-report-v17-optimized.pdf>.

Rees, S. E. *et al.* (2016) 'An evaluation framework to determine the impact of the Lyme Bay Fisheries and Conservation Reserve and the activities of the Lyme Bay Consultative Committee on ecosystem services and human wellbeing Final Report To the October 2016', (October), p. 146.

Rocliffe, S. and Paebody, S. (2013) *Locally-managed marine areas : towards a global learning network Workshop report - World Conservation. Workshop report - World Conservation Congress, Jeju, South Korea, September 2012*.

Rommens *et al.* (2015) *Technical and administrative support for the joint implementation of the Marine Strategy Framework Directive (MSFD) in Bulgaria and Romania (Phase I I)*.

Developed under EC framework contract (ENV.D.2/FRA/2012/0017) . Available at: [http://www.bsbd.org/UserFiles/File/projects/Final report - Phase II.pdf](http://www.bsbd.org/UserFiles/File/projects/Final%20report%20-%20Phase%20II.pdf) (Accessed: 30 June 2017).

Rommens, W. et al. (2015) *Technical and administrative support for the joint implementation of the Marine Strategy Framework Directive ( MSFD ) by the EU Black Sea Member States - Phase II - Under Framework contract for services related to coordination between the different marine.*

Russ, G. R. and Alcalá, A. C. (2011) 'Enhanced biodiversity beyond marine reserve boundaries: The cup spillth over', *Ecological Applications*, 21(1), pp. 241–250. doi: 10.1890/09-1197.1.

Secretariat of the Convention on Biological Diversity and the Scientific and Technical Advisory Panel –GEF (2012) *Marine spatial planning in the context of the convention on biological diversity: A study carried out in response to CBD COP 10 decision X/29, CBD Technical Series No. 68.* Available at: <https://www.cbd.int/doc/meetings/mar/mcbem-2014-04/information/mcbem-2014-04-cbd-ts-68-en.pdf>.

Shipman, B. and Petit, S. (2010) 'Final global results of the ICZM stock-taking', p. 59. Available at: [http://www.pap-thecoastcentre.org/pdfs/D2.2A\\_Final global results of the stock-taking.pdf](http://www.pap-thecoastcentre.org/pdfs/D2.2A_Final%20global%20results%20of%20the%20stock-taking.pdf) (Accessed: 27 September 2017).

Singer, R. (2016) *A Governance Analysis of the Lyme Bay MPA.* University College London (UCL). Available at: <http://www.homepages.ucl.ac.uk/~ucfwpej/pdf/MPAGDissLymeBay.pdf>.

Soriani, S., Buono, F. and Camuffo, M. (2015) 'Problems and Pitfalls in ICZM Implementation: Lessons from Some Selected Mediterranean and Black Sea Cases', *Journal of Coastal Zone Management*, s1. doi: 10.4172/2473-3350.1000S1-002.

Steenbergen, D. J. (2013) 'The Role of Tourism in Addressing Illegal Fishing: The Case of a Dive Operator in Indonesia', *Contemporary Southeast Asia: A Journal of International and Strategic Affairs*, 35(2), pp. 188–214. doi: 10.1355/cs35-2c.

The European Parliament and the Council of the European Union (2002) 'Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe', *Official Journal of the European Communities*, 2001(April), pp. 24–27. Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:148:0024:0027:EN:PDF>.

The Nature Conservancy (2012) *Case Studies: Indonesia Raja Ampat Marine Zoning, Marine Planning: Practical Approaches to Ocean and Coastal decision-making.* Available at: [http://www.marineplanning.org/Case\\_Studies/Indo\\_RA\\_Approach.html](http://www.marineplanning.org/Case_Studies/Indo_RA_Approach.html) (Accessed: 28 September 2017).

The Nature Conservancy (2018). 'Seychelles' Innovative Debt Conversion Launches. [online] Available at: <https://www.nature.org/ourinitiatives/regions/africa/explore/seychelles-innovative-debt-swap-launches.xml> [Accessed 29 Jun. 2018].

Thomas, H. et al. (2017) *Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF): Case Study Summary Report, Service Contract: EASME/ECFF/2014/1.3.1.8/SI2.717082.* Cambridge (UK).

UN Environment (2008) *United Nations Action Plan For The Conservation of Marine Mammals*

(MMAP) *In The Wider Caribbean Region*. Available at: <http://www.car-spaw-rac.org/IMG/pdf/mmap.pdf> (Accessed: 30 June 2017).

UN General Assembly (2006) 'Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and High', *A/RES/61/105*, 2167(37924), pp. 1–21. doi: 10.1093/oxfordhb/9780199560103.003.0005.

UNEP (2015) *Sourcebook of Opportunities for Enhancing Cooperation Among the Biodiversity-related Conventions at National and Regional Levels*. Nairobi, Kenya. Available at: <https://nationalmeasynnergies.files.wordpress.com/2015/06/sourcebook-web.pdf>.

UNEP/MAP (2017) *Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria*. Athens, Greece. Available at: [https://wedocs.unep.org/bitstream/handle/20.500.11822/17012/imap\\_2017\\_eng.pdf?sequence=5&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/17012/imap_2017_eng.pdf?sequence=5&isAllowed=y).

UNEP/MAP/PAP (2011) 'Action Plan for the Implementation of the ICZM Protocol for the Mediterranean 2012 - 2019. Draft.', pp. 1–22. Available at: [http://www.pap-thecoastcentre.org/razno/Action\\_Plan\\_clear\\_version\\_13\\_Sept\\_11\\_BS-2.pdf#page=1&zoom=auto,-107,848](http://www.pap-thecoastcentre.org/razno/Action_Plan_clear_version_13_Sept_11_BS-2.pdf#page=1&zoom=auto,-107,848).

UNESCO (2017) *Wadden Sea, World Heritage List*. Available at: <http://whc.unesco.org/en/list/1314> (Accessed: 7 September 2017).

United Nations (2015) 'Transforming our world: the 2030 Agenda for Sustainable Development', *General Assembly 70 session*, 16301 (October), pp. 1–35. doi: 10.1007/s13398-014-0173-7.2.

United Nations Environment Assembly of the United Nations Environment Programme (2016) 'Oceans and Seas', *UNEP/EA.2/Res.10*, pp. 1–2.

United Nations General Assembly (2017) 'Our ocean, our future: call for action', *A/RES/71/312*, 11370 (December), pp. 1–6.

Verutes, G. M. *et al.* (2017) 'Integrated planning that safeguards ecosystems and balances multiple objectives in coastal Belize', *International Journal of Biodiversity Science, Ecosystem Services & Management*. Taylor & Francis, 13(3), pp. 1–17. doi: 10.1080/21513732.2017.1345979.

Wadden Sea Forum (2013) *ICZM strategy for the Wadden Sea Region*. Available at: [http://www.waddensea-secretariat.org/sites/default/files/Meeting\\_Documents/WSB/WSB10/wsf\\_iczm\\_strategy\\_report\\_2013\\_final\\_0.pdf](http://www.waddensea-secretariat.org/sites/default/files/Meeting_Documents/WSB/WSB10/wsf_iczm_strategy_report_2013_final_0.pdf) (Accessed: 27 September 2017).

Wadden Sea Secretariat (2013a) *About the Cooperation*. Available at: <http://www.waddensea-secretariat.org/trilateral-cooperation/about-the-cooperation> (Accessed: 7 September 2017).

Wadden Sea Secretariat (2013b) *Fisheries*. Available at: <http://www.waddensea-secretariat.org/management/fisheries> (Accessed: 7 September 2017).

Walton, A. *et al.* (2015) *Vietnam Marine Protected Area Management Effectiveness Evaluation*

*FINAL REPORT.* Gland Switzerland.

WCS (2012) *Ecosystem-Based Management Plan: Kubulau District, Vanua Levu, Fiji.* Suva, Fiji.

White, A, SEA Indonesia, *pers comms*, 22<sup>nd</sup> May 2018

## 6 Annex

### 6.1 Case Study Analytical Framework

The first section of the analytical framework is a factual description of various components of the case study. These provide the factual basis for the analysis of the case study.

Question	Case-specific entries
Approach	
Region	
Implementation status	
Governance Mechanisms	
What is the legal basis of the ABMT?	
Is there government support for the ABMT?	
What is the institutional framework of the ABMT?	
What type of organisation is the Lead Entity?	
What policies are being implemented by the ABMT?	
What are the primary goals / objectives of the ABMT?	
What are the management measures associated with the ABMT?	
Does the ABMT involve cross sectorial cooperation?	
Which Sustainable Development Goals do the management measures support?	
Does the ABMT process follow an ecosystem approach?	
Does the ABMT process incorporate data and evidence?	
What type of data was used in the ABMT development process?	
Does the ABMT process include stakeholder engagement?	
Does the ABMT use spatial and/or scenario analysis to support decisions?	
What decision-support tools were used to support the planning process?	
What is the spatial focus of the ABMT?	
At what scale is the ABMT process implemented?	
What is the timeframe focused on for the management measures?	
Does the ABMT include an evaluation framework, and if so, what is the framework?	
Does the ABMT include performance monitoring, and if so, what is the framework?	
What indicators are used in the monitoring of the ABMT?	

## Case study assessment

This section of the analytical framework is focused upon answering more analytical questions. All components of this stage of the analytical framework are phrased as ‘to what extent...?’ questions. This phrasing is intended to generate reflective and analytical answers that provide insight into how each case study delivers area-based management effectively. Where possible, answers to these questions will identify links to Sustainable Development Goal targets. For each of these questions, the barriers and enabling factors are requested to be noted. The barriers are the factors that constrain the successful application of the ABMT (in the context of the relevant assessment question). The enablers are the factors that support the successful application of the ABMT (in the context of the relevant assessment question). The connection to Sustainable Development Goal targets will further enable the barriers and enablers to be linked to Sustainable Development Goal target delivery and therefore identify practices that can enhance the contribution of ABMT types to Sustainable Development Goal targets.

Assessment questions	Responses	Barriers	Enablers
To what extent does the legal basis of the ABMT support the delivery of the ABMT and associated policies?			
To what extent does the institutional framework associated with the ABMT support the delivery of the ABMT and associated policies?			
To what extent does the ABMT support the delivery of marine and coastal policies?			
To what extent does the ABMT promote transboundary cooperation?			
To what extent does the ABMT process emphasise multi-sector engagement?			
To what extent does the ABMT utilise an iterative/adaptive process?			
To what extent does the funding/resources of the ABMT support its delivery and associated policies?			
To what extent does stakeholder engagement support the effective delivery of the ABMT and associated policies?			
To what extent did data provision support the delivery of the ABMT?			

## 6.2 Sustainable Development Goals Assessed

Target	Target Description
<b>SDG 1: End poverty in all its forms everywhere</b>	
1.1	By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day
1.2	By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
1.3	Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable
1.4	By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance
1.5	By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters
<b>SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture</b>	
2.1	By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
2.2	By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons
2.5	By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed
<b>SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</b>	
8.1	Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries
8.3	Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services
8.4	Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead
8.5	By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
8.9	By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products
<b>SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable</b>	

Target	Target Description
11.1	By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums
11.2	By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
11.3	By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries
11.4	Strengthen efforts to protect and safeguard the world's cultural and natural heritage
11.5	By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations
11.6	By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
11c	Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials
<b>SDG 12: Ensure sustainable consumption and production patterns</b>	
12.1	Implement the 10-year framework of programmes on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries
12.2	By 2030, achieve the sustainable management and efficient use of natural resources
12.3	By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses
12.4	By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment
12.5	By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
12.6	Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle;
12.a	Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production
<b>SDG 13: Take urgent action to combat climate change and its impacts</b>	
13.1	Strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries
13.2	Integrate climate change measures into national policies, strategies and planning
13.3	Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
13.a	Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible
13.b	Promote mechanisms for raising capacity for effective climate change related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities

Target	Target Description
<b>SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development</b>	
14.1	By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution
14.2	By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans
14.3	Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels
14.4	By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics
14.5	By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information
14.7	By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism
14.b	Provide access for small-scale artisanal fishers to marine resources and markets
14.c	Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want
<b>SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</b>	
15.9	By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
<b>SDG 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all</b>	
16.7	Ensure responsive, inclusive, participatory and representative decision-making at all levels
<b>SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development</b>	
17.9	Capacity-Building: Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation
17.16	Multi-stakeholder partnerships: Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries
17.17	Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships

### 6.3 Types of policies supported by area-based management approaches, illustrated using case studies

Policy type	Policy implementation through area-based management approaches – illustrative examples from case studies
Societal engagement, including empowerment and engagement of local communities	<p>The second phase of the <b>Bay of Bengal Large Marine Ecosystem (BOBLME) Project</b> aims to empower coastal people to participate in sustainable development practices via a Strategic Action Programme which sets out objectives and regional and national actions. Whilst not yet in the implementation stage, the project aims to empower communities through measures including, but not limited to: (1) the promotion of institutional coordination and collaboration to foster an enabling environment for coastal communities to work towards implementing national and regional actions; (2) increasing capacity for community participation in management and decision-making, including the establishment of multi-sectoral platforms and fisheries management advisory fora (BOBLME, 2015a). In addition, while the programme acknowledges coastal fisheries and aquaculture as important for poverty reduction, it also identifies and supports the implementation of alternative income generating livelihoods, thus contributing to poverty-related SDG Targets (<b>Targets 1.1, 1.2, 1.4 and 1.5</b>).</p>
Conservation and sustainable management of natural resources to maximise economic gain	<p><b>Marine Spatial Planning in Portugal</b> was undertaken to create an effective legal framework under the National Ocean Strategy 2013-2020, <i>“for reconciling compatibilities between uses or competing activities, contributing towards a better and more economic use of the marine environment, allowing for the coordination of public authorities actions and private initiative, minimizing the impacts of human activities in the marine environment, en-route towards sustainability”</i> within the entire maritime space adjacent to the mainland and archipelagos (DGPM, 2017). The National Ocean Strategy 2013-2020 aims to enhance the economic, social and environmental conditions of the national maritime space. Enhancements to economic and social conditions could help to support job creation and employment within the marine sector (<b>Target 8.3</b>) and enhanced efforts to maintain the marine environment could involve improved resource efficiency and sustainable use which could help sustain and create marine opportunities (<b>Targets 8.4, 12.2 and 14.2</b>).</p>
Conservation and sustainable use of coastal resources	<p>In the <b>Mediterranean, the Protocol on Integrated Coastal Zone Management</b> is regarded as a key tool for achieving the objectives set out in the Mediterranean Action Plan regarding sustainable management and use of natural resources. The Protocol requires Parties to establish a common framework for the integrated management of the Mediterranean region.</p>

<p>Food security</p>	<p>The creation of a Marine Protected Area (MPA) System is a key focus for the <b>Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF)</b> which aims to protect natural resources and enhance food security throughout the region. Research indicates that MPAs, specifically no-take marine areas, can help to sustain resources and enhance diversity, richness, biomass and the size of species (including commercially exploitable species). MPAs can result in a ‘spillover effect’ whereby the increased abundance and biomass of fished species spills over into adjacent areas (<b>Targets 12.2 and 14.2</b>) (Russ &amp; Alcala, 2011). Such effects can ultimately enhance food security by increasing the availability of exploitable catch for fisher populations. This has been shown to be the case in two no-take marine reserves in the Philippines (established for both fisheries management and conservation purposes), whereby species richness of large predatory reef fish increased fourfold and 11-fold over fourteen and twenty-five years respectively, with ‘spillover effects’ from one reserve into adjacent waters (Russ &amp; Alcala, 2011). In a recent study, community members surveyed at a number of project and control sites with MPAs in the Coral Triangle Region identified positive changes in ecosystem conditions since the implementation of policies to support the establishment of MPAs under the CTI-CFF, including improvements in coral and mangrove health and fish abundance (Christie <i>et al.</i>, 2016). In the same study, survey responses indicated perceived improvements to national food security, sustainable fisheries and coral reef health as a result of the MPAs established as part of the CTI-CFF, thus demonstrating the role of the initiative in contributing towards <b>Targets 2.1 and 2.2</b> (Christie <i>et al.</i>, 2016).</p>
<p>Preservation of cultural heritage and support of recreation and tourism</p>	<p>One of the primary goals of the <b>Florida Keys National Marine Sanctuary (FKNMS)</b> is to contribute towards the conservation, protection and enhancement of the cultural legacy of a national system of Marine Protected Areas and in doing so, contribute towards global marine conservation targets (<b>Target 14.5</b>) (National Marine Sanctuary Program, 2007). Tourism is a significant contributor to the local economy within the FKNMS. Through a policy to sustain and bolster the dive tourism industry whilst simultaneously protecting the area’s natural heritage, four artificial reefs in the form of shipwrecks have been created in the FKNMS since 1997. The sinking of the ships was permitted following an extensive evaluation and permitting process. One prominent example is the sinking of the USS Spiegel Grove in the waters off Key Largo in 2002 in order to create an artificial reef (FKNMS, 2017). The aim of the artificial reef was to support local scuba diving charter businesses, whilst providing ecological benefits in the form of reduced dive pressure on natural reefs in the area. A 2005 study, found that the presence of the artificial reef resulted in a 13.7% decrease in total use of surrounding natural reefs and an increase in the local dive tourism industry (Leeworthy, Maher and Stone, 2006). Whilst these events occurred prior</p>

	<p>to the establishment of the SDGs, these actions demonstrate the desire to maintain and preserve the natural heritage of the sanctuary (<b>Target 11.4</b>).</p>
<p>Conserve health and resilience of the marine environment, biodiversity, and critical habitats</p>	<p>Policies relating to wider biodiversity conservation, ecosystem health and sustainable resource use have been implemented in Indonesia through the establishment of the <b>Raja Ampat Marine Protected Area (MPA) Network</b>. The creation of MPAs can mitigate adverse impacts associated with a wide range of marine activities and support the delivery of SDG Targets via the establishment of area-based measures under overarching policy goals, including the implementation of quotas, gear restrictions or the designation of No-Take Zones. This has been demonstrated specifically, the Misool Eco-Resort in Raja Ampat– a 168 square mile, No-Take Zone that is managed in partnership with WildAid and the Coral Reef Partnership. In the five years following the designation of the area and due to continual patrolling by local rangers, blacktip reef sharks have returned to the region and fish biomass has improved through a reduction in destructive fishing practices (<b>Targets 12.2 and 12a</b>) (Heinrichs, 2011). Following the success of the eco-resort, the entire 15,000 square mile area of Raja Ampat was established as the Raja Ampat Shark Sanctuary in 2010 to support the delivery of policies relating to biodiversity conservation and ecosystem health. The sanctuary provides full protection for sharks, mobula, manta rays, dugongs and turtles and additionally prohibits highly destructive fishing practices and fishing for the aquarium fish trade and is aimed at enhancing and maintaining biodiversity and ecosystems and sustainable use of coastal and marine resources through increases in sustainable eco-tourism (Heinrichs, 2011) (<b>Targets 8.9, 14.2, 12.4 and 14.5</b>).</p>
<p>Integrated development planning and capacity development activities</p>	<p>As part of the implementation of a regional conservation policy in the <b>Red Sea and Gulf of Aden Marine Protected Area Network</b>, the Regional Organisation for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) held a number of regional training workshop on Marine Protected Area planning and management to improve technical capacity and knowledge in these areas. Regional approaches such as this facilitate the sharing of lessons or good practice between countries and helps to build strong relationships, ultimately supporting the delivery of <b>Target 17.9</b>.</p> <p>One of the objectives of the Marine Mammal Action Plan, under the <b>Caribbean Specially Protected Areas and Wildlife Protocol</b>, is to establish regional cooperation programmes to <i>“increase scientific, technical, and educational exchange among relevant national, regional, and international organizations”</i> (UNEP, 2008), thus contributing to the delivery of <b>Target 17.9</b>.</p>

Climate change adaptation	In the context of <b>Marine Spatial Planning in Portugal</b> , plans can be updated and adapted to address emerging issues. As such, an update to the national climate change adaptation plan established a working group for coastal management issues, which identified required actions for climate change adaptation and mitigation, which support the delivery of <b>Targets 13.1 and 13.2</b> (European Commission, 2017).
Minimise marine (air) pollution	The <b>North American MARPOL Special Area - Emission Control Area</b> sets limits for emissions of the main pollutants contained in ship exhaust fumes, including nitrous oxides (NO <sub>x</sub> ), Sulphur Oxides (SO <sub>x</sub> ) and Ozone Depleting Substances and as such supports the delivery of <b>Targets 12.4 and 14c</b> (IMO, 2017).
Engagement and collaboration with and empowerment of local communities	In the <b>Raja Ampat Marine Protected Area Network</b> , sustainable tourism is being promoted by private businesses, in partnership with NGOs, as a means of reducing Illegal, Unreported and Unregulated (IUU) fishing within the area ( <b>Target 17.7</b> ). One such operator has signed up to twenty concession agreements with local communities and has delineated a privately managed sanctuary in which fishing and other economic activities are prohibited to ensure the protection and conservation of the environment and resources within ( <b>Target 11.4</b> ) (Steenbergen, 2013). In return, the dive operator provides the surrounding communities with a spectrum of benefits and services including, monetary payments, employment opportunities and training for locals in the tourism industry, and in-village infrastructure improvements ( <b>Target 14.7</b> ). In particular, the dive operator has attempted to implement a 'social well-being approach' to address the root causes of illegal fishing, such as unemployment and lack of alternative income ( <b>Target 8.9</b> ). This approach has included, the employment and training of locals in the dive industry, and the establishment of woodworking cooperatives to train locals in furniture making to promote stable income and sustainable forest resource use (Steenbergen, 2013). Finally, the dive operator engages in the enforcement of fishing regulations in the area, using the diving boats to monitor IUU fishing, provide a continuous presence of dive staff and tourist on the reefs to deter illegal fishing practices, and to apprehend illegal fishers ( <b>Target 14.4</b> ) (Steenbergen, 2013).